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For: Jan Delaval  
OR  
John Dantzman

Scientific and Technical Information Center

# SEARCH REQUEST FORM

Date: 3/27/00 Requester's Full Name: BENNETT CELSA Examiner #: 73815  
Art Unit: 1627 Phone (305) 7776 Serial Number: 09/011,940  
Results Format Preferred (circle) ☒ PAPER ☐ DISK ☐ E-MAIL

To ensure an efficient and quality search, please attach a copy of the cover sheet, claims, and abstract or fill out the following:

Title of Invention: see Attached  
Inventors (please provide full names):

Earliest Priority Date: 8/22/95

## Search Topic:

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known.

\*For Sequence Searches Only\* Please include all pertinent information (parent, grandchild, divisional, or issued patent numbers) along with the appropriate serial number.

elected invention: claims 1-2, 17-25, 32-50 [method]  
elected species: Glucose + GLP-1 (Glucagon-like peptide 1)  
- see addition species of claim 22

Please

1. search clms 1-2, 17-25 & 32-50 in relevant databases
2. search elected embodiment  
Glucose + GLP-1  
\*also search peptide species of clm 22
3. search inventors
4. can combine 3 + 192

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## STAFF USE ONLY

Searcher: Jan  
Searcher Phone #: 4498  
Searcher Location:  
Date Searcher Picked Up: 4/10  
Date Completed: 4/10  
Searcher Prep & Review Time: 15/  
Online Time: 90/

## Type of Search

☐ NA Sequence (#)  
☐ AA Sequence (#)  
☐ Structure (#)  
☒ Bibliographic  
☐ Litigation  
☐ Fulltext  
☐ Other

## Vendors and Cost

☒ STN ☐ Dialog  
☐ Questel/Orbit ☐ Dr. Link  
☐ Lexis/Nexis ☐ Westlaw  
☐ WWW/Internet  
☐ In-house sequence systems (list)  
☐ Other (specify)

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STRUCTURE FILE UPDATES: 9 APR 2000 HIGHEST RN 261502-99-2  
DICTIONARY FILE UPDATES: 9 APR 2000 HIGHEST RN 261502-99-2

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 11, 2000

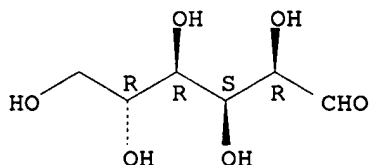
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conducting SmartSELECT searches.

Structure search limits have been increased. See HELP SLIMIT  
for details.

=> d ide can l9

L9 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2000 ACS  
RN **58367-01-4** REGISTRY  
CN DL-Glucose (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN (.+-.)-Glucose  
CN dl-Glucose  
CN Glucose  
FS STEREOSEARCH  
DR 111688-73-4  
MF C6 H12 O6  
LC STN Files: AGRICOLA, BEILSTEIN\*, BIOBUSINESS, BIOSIS, CA, CAPLUS,  
CASREACT, CEN, CIN, IMSDIRECTORY, MEDLINE, PIRA, PROMT, TOXLIT, TULSA,  
USPATFULL  
(\*File contains numerically searchable property data)

Relative stereochemistry.



83 REFERENCES IN FILE CA (1967 TO DATE)  
4 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
83 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 132:167313  
REFERENCE 2: 132:87465  
REFERENCE 3: 132:47466  
REFERENCE 4: 132:8597  
REFERENCE 5: 132:3529  
REFERENCE 6: 131:287966  
REFERENCE 7: 131:269262  
REFERENCE 8: 131:235507

Point of Contact:  
Jan Delord  
Librarian-Physical Sciences  
CM1 1E01 Tel: 308-4498

REFERENCE 9: 131:99030

REFERENCE 10: 131:60251

=> d ide can l11

L11 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2000 ACS

RN 921-60-8 REGISTRY

CN L-Glucose (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN L(-)-Glucose

CN l-Glucose

FS STEREOSEARCH

MF C6 H12 O6

CI COM

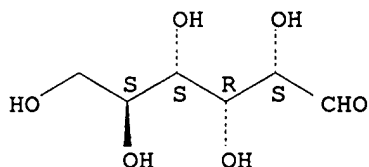
LC STN Files: AGRICOLA, BEILSTEIN\*, BIOBUSINESS, BIOSIS, CA, CAOLD, CAPLUS, CASREACT, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CSCHEM, GMELIN\*, IPA, MSDS-OHS, PROMT, RTECS\*, TOXLINE, TOXLIT, USPATFULL

(\*File contains numerically searchable property data)

Other Sources: EINECS\*\*

(\*\*Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



670 REFERENCES IN FILE CA (1967 TO DATE)

10 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

672 REFERENCES IN FILE CAPLUS (1967 TO DATE)

8 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 132:189684

REFERENCE 2: 132:178509

REFERENCE 3: 132:152031

REFERENCE 4: 132:146911

REFERENCE 5: 132:117733

REFERENCE 6: 132:85166

REFERENCE 7: 132:26663

REFERENCE 8: 131:349198

REFERENCE 9: 131:303302

REFERENCE 10: 131:297740

=> d ide can l13

L13 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2000 ACS

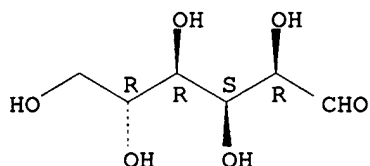
RN 50-99-7 REGISTRY

CN D-Glucose (8CI, 9CI) (CA INDEX NAME)

OTHER NAMES:

CN (+)-Glucose  
 CN Anhydrous dextrose  
 CN Cartose  
 CN Cerelose  
 CN Cerelose 2001  
 CN Corn sugar  
 CN D(+)-Glucose  
 CN Dextropur  
 CN Dextrose  
 CN Dextrosol  
 CN Glucolin  
 CN Glucose  
 CN Glucosteril  
 CN Grape sugar  
 CN Staleydex 111  
 CN Staleydex 333  
 CN Sugar, grape  
 CN Tabfine 097(HS)  
 CN Vadex  
 FS STEREOSEARCH  
 DR 8012-24-6, 8030-23-7, 162222-91-5, 165659-51-8, 50933-92-1, 80206-31-1  
 MF C6 H12 O6  
 CI COM  
 LC STN Files: AGRICOLA, AIDSLINE, ANABSTR, BEILSTEIN\*, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CABA, CANCERLIT, CAOLD, CAPLUS, CASREACT, CBNB, CEN, CHEMCATS, CHEMINFORMRX, CHEMLIST, CHEMSAFE, CIN, CSCHM, CSNB, DDFU, DETHERM\*, DIPPR\*, DRUGU, EMBASE, GMELIN\*, HSDB\*, IFICDB, IFIPAT, IFIUDB, IMSDIRECTOR, IPA, MEDLINE, MRCK\*, MSDS-OHS, NAPRALERT, NIOSHTIC, PDLCOM\*, PIRA, PROMT, RTECS\*, SPECINFO, TOXLINE, TOXLIT, TULSA, ULIDAT, USAN, USPATFULL, VETU, VTB  
 (\*File contains numerically searchable property data)  
 Other Sources: DSL\*\*, EINECS\*\*, TSCA\*\*  
 (\*\*Enter CHEMLIST File for up-to-date regulatory information)

Absolute stereochemistry.



105097 REFERENCES IN FILE CA (1967 TO DATE)  
 1743 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA  
 105196 REFERENCES IN FILE CAPLUS (1967 TO DATE)  
 14 REFERENCES IN FILE CAOLD (PRIOR TO 1967)

REFERENCE 1: 132:216291  
 REFERENCE 2: 132:216285  
 REFERENCE 3: 132:216070  
 REFERENCE 4: 132:213079  
 REFERENCE 5: 132:212732  
 REFERENCE 6: 132:212726  
 REFERENCE 7: 132:212596  
 REFERENCE 8: 132:212500

REFERENCE 9: 132:211567

REFERENCE 10: 132:209522

=> d ide can 119

L19 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2000 ACS

RN **59392-49-3** REGISTRY

CN Gastric inhibitory polypeptide (9CI) (CA INDEX NAME)

OTHER NAMES:

CN Gastric inhibitory peptide

CN GIP

CN Glucose-dependent insulinitropic peptide

CN Glucose-dependent insulinitropic polypeptide

MF Unspecified

CI PMS, MAN

PCT Manual registration

LC STN Files: AGRICOLA, ANABSTR, BIOBUSINESS, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CHEMCATS, CSCHM, DDFU, DRUGU, EMBASE, MEDLINE, NAPRALERT, TOXLINE, TOXLIT, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

957 REFERENCES IN FILE CA (1967 TO DATE)

17 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

959 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 132:193674

REFERENCE 2: 132:150280

REFERENCE 3: 132:150142

REFERENCE 4: 132:117676

REFERENCE 5: 132:103130

REFERENCE 6: 132:59445

REFERENCE 7: 132:45230

REFERENCE 8: 132:31744

REFERENCE 9: 132:31743

REFERENCE 10: 132:9115

=> d ide can 121

L21 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2000 ACS

RN **89750-14-1** REGISTRY

CN Glucagon-like peptide I (9CI) (CA INDEX NAME)

OTHER CA INDEX NAMES:

CN Glucagon-related peptide I

OTHER NAMES:

CN Glucagon-related peptide 1

CN PN: WO9947161 SEQID: 1 claimed sequence

CN PN: WO9947161 SEQID: 7 claimed sequence

MF Unspecified

CI MAN

LC STN Files: AGRICOLA, BIOSIS, BIOTECHNO, CA, CANCERLIT, CAPLUS, CIN, EMBASE, IPA, MEDLINE, TOXLINE, TOXLIT, USPATFULL

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

529 REFERENCES IN FILE CA (1967 TO DATE)

29 REFERENCES TO NON-SPECIFIC DERIVATIVES IN FILE CA

531 REFERENCES IN FILE CAPLUS (1967 TO DATE)

REFERENCE 1: 132:212699

REFERENCE 2: 132:176061

REFERENCE 3: 132:176059

REFERENCE 4: 132:175839

REFERENCE 5: 132:161338

REFERENCE 6: 132:147179

REFERENCE 7: 132:146904

REFERENCE 8: 132:146715

REFERENCE 9: 132:132452

REFERENCE 10: 132:132385

=> fil hcaplus

FILE 'HCAPLUS' ENTERED AT 13:11:43 ON 10 APR 2000

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FILE COVERS 1967 - 10 Apr 2000 VOL 132 ISS 16

FILE LAST UPDATED: 9 Apr 2000 (20000409/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

This file supports REGISTRY for direct browsing and searching of all substance data from the REGISTRY file. Enter HELP FIRST for more information.

Now you can extend your author, patent assignee, patent information, and title searches back to 1907. The records from 1907-1966 now have this searchable data in CAOLD. You now have electronic access to all of CA: 1907 to 1966 in CAOLD and 1967 to the present in HCAPLUS on STN.

=> d his

(FILE 'HCAPLUS' ENTERED AT 12:54:41 ON 10 APR 2000)

DEL HIS

E NAUCK M/AU

L1 52 S E3,E4,E11,E12

E WAGNER F/AU

L2 374 S E3

E WAGNER FRED/AU

L3 67 S E3,E7,E9,E10,E15,E18,E20,E23

E BIONE/PA,CS

L4 24 S E5-E14  
 L5 514 S L1-L4  
 L6 1 S L5 AND PARENTERAL?  
 L7 0 S L1 AND L2,L3  
 L8 3 S L1-L3 AND L4

FILE 'HCAPLUS' ENTERED AT 12:57:48 ON 10 APR 2000  
 S 50-99-7/REG# OR 921-60-8/REG# OR 58367-01-4/REG#

L9 FILE 'REGISTRY' ENTERED AT 12:58:19 ON 10 APR 2000  
 1 S 58367-01-4/RN

L10 FILE 'HCAPLUS' ENTERED AT 12:58:20 ON 10 APR 2000  
 83 S L9

L11 FILE 'REGISTRY' ENTERED AT 12:58:22 ON 10 APR 2000  
 1 S 921-60-8/RN

L12 FILE 'HCAPLUS' ENTERED AT 12:58:22 ON 10 APR 2000  
 677 S L11

L13 FILE 'REGISTRY' ENTERED AT 12:58:24 ON 10 APR 2000  
 1 S 50-99-7/RN

L14 FILE 'HCAPLUS' ENTERED AT 12:58:25 ON 10 APR 2000  
 105723 S L13  
 L15 106038 S L14 OR L12 OR L10  
 L16 20 S L5 AND L15  
 L17 48 S L5 AND GLUCOSE  
 L18 49 S L16,L17

FILE 'REGISTRY' ENTERED AT 12:59:03 ON 10 APR 2000

L19 FILE 'REGISTRY' ENTERED AT 12:59:09 ON 10 APR 2000  
 1 S 59392-49-3

L20 FILE 'HCAPLUS' ENTERED AT 13:00:12 ON 10 APR 2000  
 1432 S L19 OR GIP OR GASTRIC()INHIBIT?() (POLYPEPTIDE OR PEPTIDE) OR

L21 FILE 'REGISTRY' ENTERED AT 13:00:22 ON 10 APR 2000  
 1 S 89750-14-1

L22 FILE 'HCAPLUS' ENTERED AT 13:01:30 ON 10 APR 2000  
 958 S L21 OR GLUCAGON() (LIKE OR RELATED)() PEPTIDE() (1 OR I)  
 L23 1118 S L22 OR GLP() (1 OR I)  
 L24 30 S L5 AND L23  
 L25 22 S L18 AND L24  
 L26 15 S L25 AND 7 36  
 L27 15 S L25 AND 7 36 AMIDE  
 L28 15 S L26,L27  
 L29 1 S L28 AND COMPOSITION  
 L30 1146 S L23 OR GLUCAGONLIKE() (PEPTIDE OR POLYPEPTIDE)  
 L31 30 S L5 AND L30  
 L32 22 S L31 AND L18  
 L33 15 S L32 AND 7 36 AMIDE  
 L34 1 S L33 AND COMPOSITION  
 L35 1 S L34 AND GASTRIC INHIBIT? PEPTIDE  
 L36 2 S L32 AND FEED?  
 L37 3 S L32 AND FOOD?  
 L38 3 S L32 AND NUTRI?  
 L39 6 S L36-L38  
 L40 1 S L39 AND 63/SC,SX  
 L41 5 S L39 NOT L40  
 L42 5 S L41 AND L30  
 L43 21 S L32 NOT L40

FILE 'REGISTRY' ENTERED AT 13:10:59 ON 10 APR 2000

FILE 'HCAPLUS' ENTERED AT 13:11:43 ON 10 APR 2000

=> d all 140

L40 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2000 ACS  
 AN 1997:192193 HCAPLUS  
 DN 126:190958  
 TI Composition and medium for parenteral **nutrition**  
 IN **Nauck, Michael**  
 PA Nauck, Michael, Germany  
 SO Ger. Offen., 3 pp.  
 CODEN: GWXXBX  
 DT Patent  
 LA German  
 IC ICM A23L001-29  
 ICS A23L001-305; A61K038-22  
 CC **63-6** (Pharmaceuticals)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19530865	A1	19970227	DE 1995-19530865	19950822
	WO 9707814	A1	19970306	WO 1996-US13615	19960822
	W: AL, AM, AT, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ, DE, DE, DK, DK, EE, EE, ES, FI, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT				
	CA 2227278	AA	19970306	CA 1996-2227278	19960822
	AU 9669006	A1	19970319	AU 1996-69006	19960822
	EP 851763	A1	19980708	EP 1996-929722	19960822
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	CN 1195992	A	19981014	CN 1996-196938	19960822
	JP 11514972	T2	19991221	JP 1996-510445	19960822
PRAI	DE 1995-19530865		19950822		
	WO 1996-US13615		19960822		
AB	The compn. contains <b>glucagonlike peptide 1</b> (7-36-amide) and/or gastric inhibitory peptide, preferably in a pharmaceutical form for parenteral <b>feeding</b> .				
ST	parenteral pharmaceutical glucagonlike gastric inhibitory peptide				
IT	<b>Nutrients</b> Parenteral <b>feeding</b> Parenteral solutions (drug delivery systems) (compn. and medium for parenteral <b>nutrition</b> )				
IT	Amino acids, biological studies RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (compn. and medium for parenteral <b>nutrition</b> )				
IT	<b>50-99-7, Glucose</b> , biological studies RL: FFD (Food or feed use); THU (Therapeutic use); BIOL (Biological study); USES (Uses) (compn. and medium for parenteral <b>nutrition</b> )				
IT	59392-49-3, Gastric inhibitory polypeptide <b>89750-14-1, Glucagon-related peptide I</b> RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses) (compn. and medium for parenteral <b>nutrition</b> )				

=> d 143 bib abs hitrn tot



L43 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1999:795694 HCAPLUS

DN 132:31283

TI **Glucagon-like peptide-1** improves  
.beta.-cell response to **glucose** in subjects with impaired  
**glucose** tolerance

IN Goke, Burkhard; Byrne, Maria

PA **BioNebraska, Inc., USA**

SO PCT Int. Appl., 46 pp.  
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9964061	A1	19991216	WO 1999-US10040	19990507
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
PRAI	US 1998-89044		19980612		
AB	A compn. for the treatment of impaired <b>glucose</b> tolerance (IGT) including a compd. which binds to a receptor for <b>glucagon-                      like peptide-1</b> , and a pharmaceutical carrier. The amt. of the compd. present is an effective amt. to improve pancreatic .beta.-cell sensitivity to blood <b>glucose</b> levels in a human with IGT. Also, a method for improving the pattern of insulin secretory responses in a human with IGT by administering to the human a compn. comprising a compd. which binds to a receptor for <b>glucagon-                      like peptide-1</b> and a pharmaceutical carrier.				
IT	<b>50-99-7, D-Glucose</b> , biological studies RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study) ( <b>glucagon-like peptide-1</b> or a compd. that binds to the <b>GLP-1</b> receptor improves .beta.-cell response to <b>glucose</b> in subjects with impaired <b>glucose</b> tolerance)				
IT	<b>89750-14-1, Glucagon-like peptide                      I 89750-14-1D, Glucagon-like                      peptide I</b> , variants RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses) ( <b>glucagon-like peptide-1</b> or a compd. that binds to the <b>GLP-1</b> receptor improves .beta.-cell response to <b>glucose</b> in subjects with impaired <b>glucose</b> tolerance)				

L43 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1998:719697 HCAPLUS

DN 129:310971

TI **Glucagon-like peptide 1 (**  
**GLP-1)**. A potent gut hormone with a possible therapeutic  
perspective

AU **Nauck, M. A.**

CS Department Medicine, Knappschafts-Krankenhaus, Ruhr-University, Bochum,  
D-44892, Germany

SO Acta Diabetol. (1998), 35(3), 117-129  
CODEN: ACDAEZ; ISSN: 0940-5429

PB Springer-Verlag

DT Journal; General Review

LA English

AB A review with 166 refs. **Glucagon-like peptide 1 (GLP-1)** is a physiol. incretin hormone from the lower gastrointestinal tract, partially explaining the augmented insulin response after oral compared to i.v. **glucose** administration in normal humans. **GLP-1** also lowers glucagon concns., slows gastric emptying, stimulates (pro)insulin biosynthesis, and reduces food intake upon intracerebroventricular administration in animals. Therefore, **GLP-1** offers some interesting perspective for the treatment of type 2, and perhaps also for type 1 diabetic patients. **GLP-1 glucose**-dependently stimulates insulin secretion in type-2 diabetic patients and exogenous administration of **GLP-1** ([7-37] or [7-36 amide]) in doses elevating plasma concns. to approx. 3-4 times physiol. postprandial levels fully normalizes fasting hyperglycemia and reduces postprandial glycemic increments. Due to rapid proteolytic cleavage, which results in an inactive or even antagonistic fragment, **GLP-1** [9-36 amide], and to rapid elimination, the half-life of **GLP-1** is too short to maintain therapeutic plasma levels for sufficient period by s.c. injections of the natural peptide hormone. Current research aims to characterize **GLP-1** analogs with more suitable pharmacokinetic properties than the original peptide. Given the large amt. of **GLP-1** present in L cells, it also appears worthwhile to search for more agents that could mobilize this endogenous pool of **GLP-1**.

IT 89750-14-1, **Glucagon-like peptide**

I

RL: BAC (Biological activity or effector, except adverse); BOC (Biological occurrence); BPR (Biological process); BIOL (Biological study); OCCU (Occurrence); PROC (Process)

(**glucagon-like peptide 1** is a potent gut hormone with a possible therapeutic perspective)

L43 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1998:515987 HCAPLUS

DN 129:211923

TI Relation between gastric emptying of **glucose** and plasma concentrations of **glucagon-like peptide-1**

AU Wishart, Judith M.; Horowitz, Michael; Morris, Howard A.; Jones, Karen L.; Nauck, Michael A.

CS Department of Medicine, Royal Adelaide Hospital, Adelaide, 5000, Australia

SO Peptides (N. Y.) (1998), 19(6), 1049-1053

CODEN: PPTDD5; ISSN: 0196-9781

PB Elsevier Science Inc.

DT Journal

LA English

AB **Glucagon-like peptide-1** (**GLP-1**) may play a role in regulating gastric emptying. The aim of this study was to det. the relationship between gastric emptying of **glucose** and plasma concns. of **GLP-1**. Gastric emptying of 75 g of **glucose** dissolved in 350 mL of water was measured by the use of scintigraphy in 12 normal volunteers. Venous blood samples for measurement of **GLP-1** were obtained immediately before and for 180 min after ingestion of **glucose**. Plasma **GLP-1** rose rapidly from a baseline of 8.5 pM to 14.3 pM at 10 min, with a peak of 19.2 pM at 30 min after the **glucose** drink. The rate of gastric emptying was inversely related to the early rise in **GLP-1**, e.g., the 50% emptying time was related to the change in **GLP-1** from baseline at 10 min ( $r = 0.57$ ). The authors conclude that there is an inverse relationship between gastric emptying of **glucose** and plasma **GLP-1**. This observation is consistent with the concept that **GLP-1** is a determinant of, rather than detd. by, the rate of gastric emptying.

IT 50-99-7, D-Glucose, biological studies

89750-14-1, **Glucagon-related peptide**

I

RL: BPR (Biological process); BIOL (Biological study); PROC (Process)  
(relation between gastric emptying of **glucose** and plasma  
concns. of **glucagon-like peptide-1** in humans)

L43 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1998:277998 HCAPLUS

DN 128:290457

TI Overnight **GLP-1** normalizes fasting but not daytime  
plasma **glucose** levels in NIDDM patients

AU Willms, B.; Idowu, K.; Holst, J. J.; Creutzfeldt, W.; Nauck, Michael  
A.

CS Fachklinik Diabetes Stoffwechselkrankheiten, Bad Lauterberg, Germany

SO Exp. Clin. Endocrinol. Diabetes (1998), 106(2), 103-107

CODEN: ECEDFQ; ISSN: 0947-7349

PB Johann Ambrosius Barth

DT Journal

LA English

AB **Glucagon-like peptide 1** (7-36

amide)**glucagon-like peptide 1**

(7-36 amide) (**GLP-1**) normalizes fasting blood plasma

**glucose** in NIDDM patients. The effect was studied of overnight

i.v. **GLP-1** on the following 24 h-**glucose**

profiles. Ten NIDDM patients (7 female, 3 male; age 62 yr., BMI  
(Body-Mass-Index) 29.6 kg/m<sup>2</sup>, duration 10 yr., HbA<sub>1c</sub> 10.9% (normal  
4.0-6.1%), treated with glibenclamide and/or metformin) were studied on 2  
occasions in random order: either **GLP-1** (Saxon  
Biochems., Hannover, FRG, 1 pmol/ kg .cntdot.min) or placebo (0.9% NaCl  
with 1% human serum albumin, Behringwerke, Marburg, FRG) were infused i.v.  
from 22.00 to 7.00 (9 h) and plasma **glucose** profiles were  
obtained during the **GLP-1** infusion and the following  
24 h. **GLP-1** (plasma concn. 110 pmol/L) raised plasma  
C-peptide concns., suppressed glucagon, and lowered plasma **glucose**  
to 5.5 and 6.3 mmol/L at 3.00 and 7.00 a.m. (vs. 10.3 and 11.3 mmol/L,  
resp., with placebo). Thereafter, starting 1 h after breakfast, no  
differences in plasma **glucose**, insulin, C-peptide, or glucagon  
profiles were found between expts. with **GLP-1** and  
placebo. Plasma **glucose** concns. over the whole 24 h period were  
reduced by 18% by **GLP-1** administered overnight. In  
conclusion, (1) overnight **GLP-1** normalizes fasting  
plasma **glucose**, but (2) has no sustained effect on meal-induced  
**glucose**, insulin or glucagon concns. once its administration was  
stopped. (3) Normalization of fasting plasma **glucose** alone does  
not improve daytime metabolic control in NIDDM patients on oral agents.

L43 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1997:752513 HCAPLUS

DN 128:44063

TI **Glucagon-like peptide 1** inhibition

of gastric emptying outweighs its insulinotropic effects in healthy humans

AU Nauck, Michael A.; Niedereichholz, Ulrich; Ettler, Rainer;

Holst, Jens Juul; Orskov, Cathrine; Ritzel, Robert; Schmiegell, Wolff H.

CS Department of Medicine, Ruhr-University, Knappschafts-Krankenhaus, Bochum,  
044892, Germany

SO Am. J. Physiol. (1997), 273(5, Pt. 1), E981-E988

CODEN: AJPHAP; ISSN: 0002-9513

PB American Physiological Society

DT Journal

LA English

AB **Glucagon-like peptide 1** (

**GLP-1**) has been shown to inhibit gastric emptying of

liq. meals in type 2 diabetic patients. It was the aim of the present  
study to compare the action of physiol. and pharmacol. doses of i.v.

**GLP-1**-(7-36) amide and **GLP-1**-(7-37)

on gastric emptying in normal volunteers. Nine healthy subjects

participated (26 yr; body mass index 22.9 kg/M<sup>2</sup>; Hb A1C 5.0%) in five expts. on sep. occasions after an overnight fast. A nasogastric tube was positioned for the detn. of gastric vol. by use of a dye-diln. technique (phenol red). **GLP-1-(7-36)** amide (0.4, 0.8, or 1.2 pmol/kg/min), **GLP-1-(7-37)** (1.2 pmol/kg/min), or placebo was infused i.v. from -30 to 240 min. A liq. meal (50 g sucrose, 8% amino acids, 440 mL, 327 kcal) was administered at 0 min. **Glucose**, insulin, and C-peptide were measured over 240 min. Gastric emptying was dose dependently slowed by **GLP-1-(7-36)** amide. Effects of **GLP-1-(7-37)** at 1.2 pmol/kg/min were virtually identical. **GLP-1** dose dependently stimulated fasting insulin secretion (-30 to 0 min) and slightly reduced **glucose** concns. After the meal (0-240 min), integrated incremental **glucose** and insulin responses were reduced (dose dependently) rather than enhanced. In conclusion, (1) **GLP-1-(7-36)** amide or **-(7-37)** inhibits gastric emptying also in normal subjects, (2) physiol. doses (0.4 pmol/kg/min) still have a significant effect, (3) despite the known insulinotropic actions of **GLP-1-(7-36)** amide and **-(7-37)**, the net effect of administering **GLP-1** with a meal is no change or a redn. in meal-related insulin responses. These findings suggest a primarily inhibitory function for **GLP-1** (ileal brake mechanisms).

IT **89750-14-1, Glucagon-related peptide**

I

RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(**glucagon-like peptide 1**

inhibition of gastric emptying outweighs insulinotropic effects in healthy humans)

L43 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1997:727076 HCAPLUS

DN 127:342096

TI A liquid mixed meal or exogenous **glucagon-like peptide 1 (GLP-1)** do not alter

plasma leptin concentrations in healthy volunteers

AU Drewes, C.; Nauck, M. A.; Horn, R.; Holst, J.; Schmiegell, W.; Brabant, G.

CS Knappschafts-Krankenhaus, Univ. Bochum, Bochum, D-44892, Germany

SO Acta Diabetol. (1997), 34(3), 230-234

CODEN: ACDAEZ; ISSN: 0940-5429

PB Springer-Verlag

DT Journal

LA English

AB The role of **glucagon-like peptide 1**

[7-36 amide] (**GLP-1**) and the obese gene product

(leptin) was investigated in the central regulation of feeding. Blood plasma leptin concns. (31 pmol/L) did not change within 240 min after ingestion of a liq. test meal nor in response to the i.v. infusion of exogenous **GLP-1** leading to plasma levels of 25 and 36

(basal 6) pmol/L. **Glucose** and insulin increased after meal from 4.7 to 6.0 at 15 min and from 28 to 325 pmol/L at 45 min, resp. Plasma leptin levels showed no short-term changes after feeding a liq. mixed meal and did not appear to be directly influenced by physiol. and pharmacol. elevations in plasma **GLP-1**.

IT **89750-14-1, Glucagon-related peptide**

I

RL: BAC (Biological activity or effector, except adverse); BIOL (Biological study)

(no effect of **GLP-1** on blood leptin)

L43 ANSWER 7 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1997:687481 HCAPLUS

DN 127:303498

- TI **Glucagon-like peptide 1** and its potential in the treatment of non-insulin-dependent diabetes mellitus
- AU **Nauck, Michael A.**; Holst, J. J.; Willms, B.
- CS Med. Klin., Knappschaftskrankenhaus Bochum, Bochum, D-44892, Germany
- SO Horm. Metab. Res. (1997), 29(9), 411-416  
CODEN: HMMRA2; ISSN: 0018-5043
- PB Thieme
- DT Journal
- LA English
- AB Studies examg. small groups of type 2-(NIDDM) diabetic patients have shown the potential of **glucagon-like peptide 1 (GLP-1)** to normalize fasting hyperglycemia. Patient characteristics detg. the size of the effect have not been reported. Therefore, the results of four studies were analyzed. Exogenous **GLP-1** was administered i.v. or s.c. in 37 type 2-diabetic patients, age 60 yr; BMI 28.2 kg/m<sup>2</sup>; HbA1c 10.6 ; diabetes duration 10 yr, treatment with sulfonylureas, n =33, metformin, n =11, acarbose, n = 3. Results were analyzed using repeated measures anal. of variance and multiple regression anal. Exogenous **GLP-1** lowered fasting plasma **glucose** within 4-5 h from 12.8 to 5.3 mmol/L (placebo: 12.8 to 10.0 ). Only fasting glycemia and the route (i.v. vs. s.c.), but not gender, age, BMI, HbA1c, diabetes duration, treatment with sulfonylureas, metformin, or acarbose, were significant predictors of the plasma **glucose** concns. reached after the administration of **GLP-1** (variation: 3.4-8.5 mmol/L). In conclusion, **GLP-1** is able to normalize plasma **glucose** in all type 2-diabetic patients studied. This anal. underlines the great therapeutic potential of **GLP-1**.
- IT **89750-14-1, Glucagon-related peptide I**  
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(**glucagon-like peptide 1** and its potential in the treatment of non-insulin-dependent diabetes mellitus)
- L43 ANSWER 8 OF 21 HCAPLUS COPYRIGHT 2000 ACS
- AN 1997:578682 HCAPLUS
- DN 127:229715
- TI **Glucagonlike peptide 1**
- AU **Nauck, Michael A.**
- CS Medizinische Universitätsklinik, Knappschafts-Krankenhaus Bochum (Langendreer), Bochum, D 44892, Germany
- SO Curr. Opin. Endocrinol. Diabetes (1997), 4(4), 291-299  
CODEN: CENDES; ISSN: 1068-3097
- PB Rapid Science Publishers
- DT Journal; General Review
- LA English
- AB A review, with 123 refs. **Glucagonlike peptide 1** is a gut hormone with multiple functions. In addn. to (**glucose** -dependently) stimulating insulin and inhibiting glucagon secretion, it decelerates gastric emptying and enhances (pro)insulin biosynthesis. In addn. to these well-established actions, recent studies suggest an important role in the central regulation of food and water intake and possibly as a minor stimulus to TSH secretion. Further effects on "peripheral" tissues involved in the regulation of carbohydrate metab. (liver, muscle, and adipose tissue) are debated but probably make only minor contributions on the level of the whole organism. The well-preserved activity of **glucagonlike peptide 1** in type 2 diabetes has led to the suggestion that this hormone or its analogs may be used as new therapeutic agents to reduce or even normalize hyperglycemia in patients with non-insulin dependent diabetes. Redns. in glucagon plasma levels and motility effects are also obsd. in patients with type 1 diabetes, leading to a significant redn. in fasting and postprandial glycemia. A clin. useful prepn. of **glucagonlike peptide 1**, however, has yet to be developed.

IT 89750-14-1, Glucagon-related peptide

I

RL: BAC (Biological activity or effector, except adverse); BIOL  
(Biological study)

(Glucagonlike peptide 1)

L43 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1997:540016 HCAPLUS

DN 127:215285

TI Glucacon-like peptide 1 (GLP-1) as a new therapeutic  
approach for type 2-diabetes

AU Nauck, Michael A.; Holst, J. J.; Willms, B.; Schmiegel, W.

CS Dep. Medicine, Knappschafts-Krankenhaus, Bochum, D-44892, Germany

SO Exp. Clin. Endocrinol. Diabetes (1997), 105(4), 187-195

CODEN: ECEDFQ; ISSN: 0947-7349

PB Barth

DT Journal; General Review

LA English

AB A review with many refs. is given on glucagon-like

peptide 1 (GLP-1) as a new

therapeutic approach for type 2-diabetes. GLP-1 is a  
physiol. incretin hormone in normal humans explaining in part the  
augmented insulin response after oral vs. i.v. glucose  
administration. In addn., GLP-1 also lowers glucagon  
concns., slows gastric emptying, stimulates (pro)insulin biosynthesis,  
reduces food intake upon intracerebroventricular administration in  
animals, and may enhance insulin sensitivity. Therefore, GLP-  
1 opposes the type 2-diabetic phenotype characterized by disturbed  
glucose-induced insulin secretory capacity, hyperglucagonemia,  
moderate insulin deficiency, accelerated gastric emptying, overeating  
(obesity), and insulin resistance. The other incretin hormone, gastric  
inhibitory polypeptide (GIP), has lost almost all its activity in type  
2-diabetic patients. In contrast, GLP-1  
glucose-dependently stimulates insulin secretion in diet- and  
sulfonylurea-treated type 2-diabetic patients and also in patients under  
insulin therapy long after sulfonylurea 2ndary failure. Exogenous  
administration of GLP-1 ([7-37] or [7-36 amide]) in  
doses elevating plasma concns. to approx. 3-4 fold physiol. postprandial  
levels fully normalizes fasting hyperglycemia in type 2-diabetic patients.  
The half life of GLP-1 is too short to maintain  
therapeutic blood plasma levels for sufficient periods by s.c. injections.  
Current research activities aim at finding GLP-1  
analogs with more suitable pharmacokinetic properties than the original  
peptide. Another approach could be the augmentation of endogenous release  
of GLP-1, which is abundant in L cells of the lower  
small intestine and the colon. Interference with sucrose digestion using  
.alpha.-glucosidase inhibition moves nutrients into distal parts of the  
gastrointestinal tract and, thereby, prolongs and augments GLP-  
1 release. Enprostil, a prostaglandin E2 analog, fully suppresses  
GIP responses, while only marginally affecting insulin secretion and  
glucose tolerance after oral glucose, suggesting  
compensatory hypersecretion of addnl. insulinotropic peptides, possibly  
including GLP-1. Given the large amt. of GLP  
-1 present in L cells, it appears worthwhile to look for more  
agents that could "mobilize" this endogenous pool of the  
"antidiabetogenic" gut hormone GLP-1.

L43 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1997:509760 HCAPLUS

DN 127:203648

TI The pathogenesis of NIDDM involves a defective expression of the GIP  
receptor

AU Holst, J. J.; Gromada, J.; Nauck, M. A.

CS Dep. Medical Physiology, University Copenhagen, Copenhagen, DK-2200, Den.

SO Diabetologia (1997), 40(8), 984-986

CODEN: DBTGAI; ISSN: 0012-186X

- PB Springer  
DT Journal; General Review  
LA English  
AB A review and discussion with 34 refs., describing decreased incretin effect in non-insulin-dependent diabetes mellitus (NIDDM) patients, full efficacy of **glucagon-like peptide-1** (GLP-1) and lack of effect of Glc-dependent insulinotropic polypeptide (GIP) on insulin secretion, and absence of incretin effect (small loads of Glc) at normal GIP secretion in diabetic .beta.-cells. The apparent polygenicity of NIDDM is hypothesized to be caused by genetically defective expression of the GIP receptor.
- IT **89750-14-1, Glucagon-related peptide**  
I  
RL: BOC (Biological occurrence); BIOL (Biological study); OCCU (Occurrence)  
(the pathogenesis of NIDDM involves a defective expression of the GIP receptor)
- L43 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2000 ACS  
AN 1997:103399 HCAPLUS  
DN 126:181413  
TI On the effects of **glucagon-like peptide-1** on blood **glucose** regulation in normal and diabetic subjects  
AU Holst, Jens Juul; Toft-Nielsen, Maj-Brit; Oerskov, Cathrine; Nauck, Michael; Willms, Behrend  
CS Department of Medical Physiology, Panum Institute, University of Copenhagen, Copenhagen, DK-2200, Den.  
SO Ann. N. Y. Acad. Sci. (1996), 805(VIP, PACAP, and Related Peptides), 729-736  
CODEN: ANYAA9; ISSN: 0077-8923  
PB New York Academy of Sciences  
DT Journal; General Review  
LA English  
AB A review, with 54 refs.  
IT **89750-14-1, Glucagon-related peptide**  
I  
RL: BAC (Biological activity or effector, except adverse); THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(**glucagon-like peptide-1** effect on blood **glucose** regulation in normal and diabetic humans)
- L43 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2000 ACS  
AN 1996:745819 HCAPLUS  
DN 126:140060  
TI Effects of subcutaneous **glucagon-like peptide 1** (GLP-1 [7-36 amide]) in patients with NIDDM  
AU Nauck, M. A.; Wollschlaeger, D.; Werner, J.; Holst, J. J.; Oerskov, C.; Creutzfeldt, W.; Willms, B.  
CS Knappschafts-Krankenhaus, Ruhr-Univ., Bochum, D-44892, Germany  
SO Diabetologia (1996), 39(12), 1546-1553  
CODEN: DBTG AJ; ISSN: 0012-186X  
PB Springer  
DT Journal  
LA English  
AB The effects of s.c. administration of **glucagon-like peptide 1** were investigated in non-insulin-dependent diabetic patients. **Glucose**(**glucose** oxidase), insulin, C-peptide, **GLP-1**, and glucagon were measured. Results were similar compared with i.v. infusion in normalizing elevated fasting plasma **glucose** concns. when repeated doses are administered.
- IT **89750-14-1, Glucagon-related peptide**  
I  
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

(s.c. **glucagon-like peptide 1**  
effect in patients with NIDDM)

L43 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1996:657992 HCAPLUS

DN 125:293228

TI Potential of **GLP-1** in diabetes management

AU Holst, J. J.; Nauck, M. A.; Deacon, C. F.; Oerskov, C.

CS Panum Institutttet, University Copenhagen, Copenhagen, 2200, Den.

SO Handb. Exp. Pharmacol. (1996), 123(Glucagon III), 311-326

CODEN: HEPHD2; ISSN: 0171-2004

DT Journal; General Review

LA English

AB A review, with 86 refs., of the insulinotropic activity of **GLP-1** which discusses: actions of **GLP-1** on blood **glucose** in humans; gastrointestinal effects of **GLP-1** in humans; **GLP-1** and diabetes; and **GLP-1** metab. in normal and diabetic subjects.

IT 89750-14-1, **Glucagon-related peptide**

I

RL: BAC (Biological activity or effector, except adverse); THU

(Therapeutic use); BIOL (Biological study); USES (Uses)

(**GLP-1** potential in diabetes management in humans)

L43 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1996:247447 HCAPLUS

DN 124:333607

TI Release of **glucagon-like peptide 1**

(**GLP-1**[7-36 amide]), gastric inhibitory polypeptide

(GIP), and insulin in response to oral **glucose** after upper and lower intestinal resections

AU Nauck, Michael A.; Siemsgluess, J.; Oerskov, C.; Holst, J. J.

CS Dep. Med., Ruhr-Univ., Bochum, D-44892, Germany

SO Z. Gastroenterol. (1996), 34(3), 159-66

CODEN: ZGASAX; ISSN: 0044-2771

DT Journal

LA English

AB The influence of small intestinal resections or colonectomy on changes in **glucagon-like peptide 1** (GLP)

release were investigated after oral **glucose** application in inactive Crohn's disease (no surgery), after primarily jejunal or ileal small intestinal resections, and after 6 colonectomy. Oral **glucose** tolerance tests (75 g) were performed in the fasting state. GLP, insulin, C-peptide, gastric inhibitory peptide (GIP), and glucagon were measured over 240 min. An early (peak: 15-30 min) GLP response was obsd. in all subjects. After colonectomy, higher insulin, C-peptide, and GIP responses were found. Inactive Crohn's disease and resections of the small intestine as well as proctocolectomy did not change GLP response. This may indicate release of GLP after oral **glucose** from the GLP producing L-cells in the upper gut rather than from the ileum, colon, and rectum. Insulin hypersecretion after colonectomy combined with a normal oral **glucose** tolerance possibly indicates a reduced insulin secretion.

IT 50-99-7, D-**Glucose**, biological studies

RL: BPR (Biological process); BIOL (Biological study); PROC (Process)  
(release of **glucagon-like peptide**

**1** (**GLP-1**[7-36 amide]), gastric inhibitory

polypeptide, and insulin in response to oral **glucose** after upper and lower intestinal resections)

L43 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1996:48902 HCAPLUS

DN 124:107246

TI Gastric emptying, **glucose** responses, and insulin secretion after a liquid test meal: effects of exogenous **glucagon-like peptide-1** (**GLP-1**)-(7-36) amide in



type 2 (noninsulin-dependent) diabetic patients

AU Willms, Berend; Werner, Jens; Holst, Jens Juul; Oerskov, Cathrine; Creutzfeldt, Werner; **Nauck, Michael A.**

CS Fachklinik Diabetes und Stoffwechselkrankheiten, Bad Lauterberg, Germany

SO J. Clin. Endocrinol. Metab. (1996), 81(1), 327-32  
CODEN: JCEMAZ; ISSN: 0021-972X

DT Journal

LA English

AB The aim of the study was to investigate whether inhibition of gastric emptying of meals plays a role in the mechanism of the blood **glucose**-lowering action of **glucagon-like peptide-1**-(7-36) amide [**GLP-1**-(7-36) amide] in type 2 diabetes. Eight poorly controlled type 2 diabetic patients (age, 58  $\pm$  6 yr; body mass index, 30.0  $\pm$  5.2 kg/m<sup>2</sup>; Hb Alc, 10.5  $\pm$  1.2%) were studied in the fasting state (plasma **glucose**, 11.1  $\pm$  1.1 mmol/L). A liq. meal of 400 mL contg. 8% amino acids and 50 g sucrose (327 kcal) was administered at time zero by a nasogastric tube. Gastric vol. was detd. by a dye diln. technique using phenol red. In randomized order, **GLP-1**-(7-36) amide (1.2 pmol/kg.cntdot.min; Saxon Biochems.) or placebo (0.9% NaCl with 1% human serum albumin) was infused between -30 and 240 min. In the control expt., gastric emptying was completed within 120 min, and plasma **glucose**, insulin, C-peptide, **GLP-1**-(7-36) amide, and glucagon concns. transiently increased. With exogenous **GLP-1**-(7-36) amide (plasma level,  $\approx$  70 pmol/L), gastric vol. remained const. over the period it was measured (120 min; P < 0.0001 vs. placebo), and plasma **glucose** fell to normal fasting values (5.4  $\pm$  0.7 mmol/L) within 3-4 h, whereas insulin was stimulated in most, but not all, patients, and glucagon remained at the basal level or was slightly suppressed. In conclusion, **GLP-1**-(7-36) amide inhibits gastric emptying in type 2 diabetic patients. Together with the stimulation of insulin and the inhibition of glucagon secretion, this effect probably contributes to the blood **glucose**-lowering action of **GLP-1**-(7-36) amide in type 2-diabetic patients when studied after meal ingestion. At the degree obsd., inhibition of gastric emptying, however, must be overcome by tachyphylaxis, redn. in dose, or pharmacol. interventions so as not to interfere with the therapeutic use of **GLP-1**-(7-36) amide in type 2 diabetic patients.

L43 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1995:952161 HCAPLUS

DN 124:1186

TI **Glucagon-like peptide 1** (7-36 amide) secretion in response to luminal sucrose from the upper and lower gut: A study using  $\alpha$ -glucosidase inhibition (acarbose)

AU Qualmann, C.; **Nauck, M. A.**; Holst, J. J.; Orskov, C.; Creutzfeldt, W.

CS Dept. Medicine, Georg-August University, Goettingen, Germany

SO Scand. J. Gastroenterol. (1995), 30(9), 892-6  
CODEN: SJGRA4; ISSN: 0036-5521

DT Journal

LA English

AB After nutrient ingestion there is an early response of **glucagon-like peptide 1** (**GLP-1**) immunoreactivity, although **GLP-1** is mainly produced in endocrine cells from the lower gut (ileum and colon/rectum), suggesting that indirect stimulation is important after the ingestion of carbohydrates that are predominantly absorbed from the upper intestine. To enable contact of sucrose with lower gut mucosa, sucrose was administered by mouth with and without the simultaneous ingestion of 100 mg of the  $\alpha$ -glucosidase inhibitor acarbose to six normal healthy volunteers. There was an early increase in **GLP-1** 15 min after sucrose ingestion. With acarbose, sucrose reached the colon approx. 120 min after ingestion, as indicated by an increase in breath hydrogen exhalation, and **GLP-1** release was prolonged. The sucrose-related increases in **glucose**, insulin, C-peptide,

and gastric inhibitory polypeptide (GIP) and the suppression of glucagon were only marginally affected by acarbose administration. Thus, **GLP-1** release appears to be influenced by indirect mechanisms (early response after sucrose) and by direct luminal contact with lower gut mucosal endocrine cells (late response with acarbose).

L43 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1995:660255 HCAPLUS

DN 123:103130

TI Pharmacokinetic, insulintropic, and glucagonostatic properties of **GLP-1** [7-36 amide] after subcutaneous injection in healthy volunteers. Dose-response-relationships

AU Ritzel, R.; Oerskov, C.; Holst, J.J.; Nauck, M.A.

CS Department of Medicine, Ruhr-University, Bochum, D-44892, Germany

SO Diabetologia (1995), 38(6), 720-5

CODEN: DBTGAJ; ISSN: 0012-186X

DT Journal

LA English

AB I.v. infusions of **glucagon-like peptide**

**1** (**GLP-1**) [7-36 amide] are **glucose**

-dependently insulintropic and glucagonostatic and normalize plasma

**glucose** concns. in non-insulin-dependent diabetic patients. It

was the aim of this study to investigate whether s.c. **GLP-**

**1** [7-36 amide] also has an influence on insulin and glucagon

secretion, and which doses are required for significant effects.

Therefore, eight healthy volunteers (24  $\pm$  2 yr, body mass index [BMI]

21.9  $\pm$  2.3 kg/m<sup>2</sup>) were studied in the fasting state on five occasions

in randomized order. Placebo (0.9% NaCl with 1 % human serum albumin) or

**GLP-1** [7-36 amide] in doses of 0.15, 0.5, 1.5 or 4.5

nmol/kg body wt. (vol. 1 mL or, at the highest dose, 2 mL) was

administered s.c. An i.v. **glucose** bolus (0.33 g/kg body wt.)

was injected 30 min later. Blood was drawn for the measurement of

**glucose**, insulin, C-peptide, **GLP-1** [7-36

amide], and glucagon using specific RIAs. There were dose-related

increments in **GLP-1** [7-36 amide] concns. ( $p < 0.0001$ ).

However, basal values were reached again after 90-120 min. Before

**glucose** administration, insulin ( $p < 0.0001$ ) and C-peptide ( $p <$

0.0004) increased, whereas glucagon ( $p = 0.0018$ ) and **glucose** ( $p$

$< 0.0001$ ) decreased in a dose-dependent manner. After **glucose**

stimulation, integrated increments in insulin ( $p = 0.0007$ ) and C-peptide

( $p = 0.02$ ) were augmented and KG-values increased ( $p < 0.0001$ ) in a

dose-related fashion. The extent of reactive hypoglycemia was related to

the **GLP-1** [7-36 amide] dose. With the highest

**GLP-1** [7-36 amide] dose, at the time of peak plasma

concns., most volunteers felt unwell, and nausea and vomiting were obsd.

in four subjects. In conclusion, s.c. **GLP-1** [7-36

amide] is also able to stimulate insulin and inhibit glucagon secretion,

thereby altering **glucose** assimilation. However, with unmodified

**GLP-1** [7-36 amide], the duration of action is short, and

with high doses side effects are common.

IT 89750-14-1, **Glucagon-related peptide**

I

RL: ADV (Adverse effect, including toxicity); BAC (Biological activity or effector, except adverse); BPR (Biological process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)

((**GLP-1**) [7-36 amide]; pharmacokinetic,

insulintropic, and glucagonostatic properties of **GLP-**

**1** [7-36 amide] after s.c. injection in healthy volunteers.

Dose-response-relationships)

IT 50-99-7, D **Glucose**, biological studies

RL: BPR (Biological process); BIOL (Biological study); PROC (Process)

(pharmacokinetic, insulintropic, and glucagonostatic properties of

**GLP-1** [7-36 amide] after s.c. injection in healthy

volunteers. Dose-response-relationships)

L43 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2000 ACS

- AN 1995:627109 HCAPLUS  
 DN 123:26026  
 TI Insulinotropic actions of intravenous **glucagon-like peptide-1 (GLP-1)** [7-36 amide] in the fasting state in healthy subjects  
 AU Qualmann, C.; **Nauck, M. A.**; Holst, J. J.; Oerskov, C.; Creutzfeldt, W.  
 CS Department of Medicine, Georg-August-University, Goettingen, Germany  
 SO Acta Diabetol. (1995), 32(1), 13-16  
 CODEN: ACDAEZ; ISSN: 0940-5429  
 DT Journal  
 LA English  
 AB **GLP-1** (7-36 amide) stimulates insulin and suppresses glucagon secretion in normal subjects and may, in pharmacol. doses, normalize hyperglycemia in type 2 diabetic patients. It is not known whether such pharmacol. doses can actually lower blood **glucose** to hypoglycemic levels. Therefore, in seven normal fasting subjects, **GLP-1** (7-36 amide) was infused i.v. at 0.3, 0.9 and 2.7 pmol/kg per min for 30 min each. The plasma concn. of **GLP-1** (7-36 amide) increased dose-dependently, but insulin secretion (insulin, C-peptide) was stimulated only marginally. Glucagon was slightly suppressed, and plasma **glucose** was reduced, but not into the hypoglycemic range. In conclusion, when plasma **glucose** concns. are in the normal fasting range, **GLP-1** (7-36 amide) is not able to stimulate insulin secretion to a degree that causes hypoglycemia. This should limit the risk of hypoglycemic responses when **GLP-1** (7-36 amide) is administered in pharmacol. doses to reduce hyperglycemia in type 2 diabetic patients.
- IT 50-99-7, D-**Glucose**, biological studies  
 RL: BPR (Biological process); BIOL (Biological study); PROC (Process) (**glucagon-like peptide-1** effect on plasma **glucose** in humans)
- L43 ANSWER 19 OF 21 HCAPLUS COPYRIGHT 2000 ACS  
 AN 1995:582099 HCAPLUS  
 DN 122:306962  
 TI Physiological augmentation of amino acid-induced insulin secretion by GIP and **GLP-I** but not by CCK-8  
 AU Fieseler, Pia; Bridenbaugh, Stephanie; Nustede, Rainer; Martell, Joachim; Orskov, Cathrine; Holst, Jens J.; **Nauck, Michael A.**  
 CS Georg-August Univ., Goettingen, D-37075, Germany  
 SO Am. J. Physiol. (1995), 268(5, Pt. 1), E949-E955  
 CODEN: AJPHAP; ISSN: 0002-9513  
 DT Journal  
 LA English  
 AB It was the aim of this study to test insulinotropic actions of cholecystokinin octapeptide (CCK-8), gastric inhibitory polypeptide (GIP), and **glucagon-like peptide I (GLP-I)**-(7-36) amide at basal **glucose** but physiol. elevated amino acid concns. Therefore, in nine fasting healthy volunteers, an amino acid mixt. was infused i.v. (12.6 g/h over 120 min). On sep. occasions, from 30 to 120 min, placebo (0.9% NaCl-1% human serum albumin), synthetic sulfated CCK-8 (0.5 pmol.cntdot.kg-1.cntdot.min-1), human GIP (1 pmol.cntdot.kg-1.cntdot.min-1), or **GLP-I**-(7-36) amide (0.3 pmol.cntdot.kg-1.cntdot.min-1) was infused i.v. to mimic physiol. increments after a meal. The amino acid infusion lead to a small increment in plasma **glucose** from 4.8 to 5.0 mmol/l and significantly elevated insulin and C-peptide concns. GIP and **GLP-I**-(7-36) amide further stimulated insulin (1.8-fold, and 0.004, resp.) and C-peptide (1.3-fold, and 0.013, resp.), with a subsequent slight redn. in plasma **glucose**. Insulin and C-peptide then decreased again in parallel. CCK-8 was without effect on insulin and C-peptide levels. In conclusion, GIP and **GLP-I**-(7-36) amide are not only able to interact with elevated plasma **glucose** but are insulinotropic also with physiol. raised amino acid concns. Such an interaction could play a role after the ingestion of mixed meals.

Cholecystokinin, is not a physiolo. incretin also under these conditions.

L43 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1993:420852 HCAPLUS

DN 119:20852

TI Additive insulintropic effects of exogenous synthetic human gastric inhibitory polypeptide and **glucagon-like peptide-1-(7-36)** amide infused at near-physiological insulintropic hormone and **glucose** concentrations

AU **Nauck, Michael A.**; Bartels, Eckart; Oerskov, Catherine; Ebert, Reinhold; Creutzfeldt, Werner

CS Dep. Med., Georg August Univ., Goettingen, Germany

SO J. Clin. Endocrinol. Metab. (1993), 76(4), 912-17

CODEN: JCEMAZ; ISSN: 0021-972X

DT Journal

LA English

AB Gastric inhibitory polypeptide (GIP) and **glucagon-like peptide-1-(7-36)** amide (GLP-1) are **glucose**-dependent insulintropic gut hormones that may explain the greater insulin secretory response with oral compared to i.v. **glucose** (incretin effect). To study their individual and combined contributions, in 8 healthy volunteers, on sep. occasions, synthetic human GIP (1 pmol/kg/min) and/or GLP-1 (0.3 pmol/kg.min) or placebo were infused i.v. (-30 to 120 min), while at 0 min, a **glucose** infusion isoglycemic to the profile after an oral **glucose** load of 50 g/400 mL was started. After the administration of 50 g oral **glucose**, immunoreactive GIP rose several-fold to 337 pmol/L, while there was only a transient (10-30 min) and moderate increment in immunoreactive GLP-1 (from basal, 25-30, to 41 pmol/L). Isoglycemic i.v. **glucose** infusions led to smaller B-cell responses (estd. incretin effect, 41%). With single infusions of GIP or GLP-1 (circulating concns., 464 and 54 pmol/L, resp.), B-cell responses were augmented compared to i.v. **glucose** alone and were no longer different from those after oral **glucose**. The combination of GIP and GLP-1 led to B-cell responses that were higher than those with either hormone alone (additive mode of cooperation). Plasma GIP concns. were similar after endogenous secretion (oral **glucose**) and i.v. infusion, while exogenously administered GLP-1 led to plasma levels that were maintained at an elevated level for a longer period during exogenous infusion than after stimulation by oral **glucose**. When in 7 volunteers, a lower dose (0.15 pmol/kg.min) of GLP-1 was infused during isoglycemic **glucose** infusion expts. only for the duration of elevated plasma levels in the oral **glucose** challenges (0-30 min), a transient, increment in insulin and C-peptide concns. was obsd., which was equiv. to 26% of the estd. incretin effect. Circulating GIP seems to make a major contribution to the incretin effect after oral **glucose**, and GLP-1 appears to mediate a smaller proportion. GIP and GLP-1 can interact in an additive manner in normal man.

IT 50-99-7, D-Glucose, biological studies

RL: BIOL (Biological study)

(insulin secretion response to, in human, gastric inhibitory polypeptide and **glucagon-like peptide 1** effect on)

L43 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2000 ACS

AN 1993:16644 HCAPLUS

DN 118:16644

TI Lack of effect of synthetic human gastric inhibitory polypeptide and **glucagon-like peptide 1** [7-36 amide] infused at near-physiological concentrations on pentagastrin-stimulated gastric acid secretion in normal human subjects

AU **Nauck, Michael A.**; Bartels, Eckart; Oerskov, Cathrine; Ebert, Reinhold; Creutzfeldt, Werner

CS Dep. Med., Georg-August-Univ., Goettingen, Germany

SO Digestion (1992), 52(3-4), 214-21  
 CODEN: DIGEBW; ISSN: 0012-2823

DT Journal

LA English

AB Gastric inhibitory polypeptide (GIP) and **glucagon-like peptide 1** [7-36 amide] (**GLP-1**) are **glucose**-dependent insulintropic gut hormones. Under exptl. conditions, both have been shown to reduce stimulated gastric acid secretion. To study their individual and combined effects on pentagastrin-stimulated (0.1  $\mu$ g/kg/h from -90 to 120 min) gastric vol. and acid and chloride outputs, on sep. occasions, synthetic human GIP (1 pmol/kg/min) and/or **GLP-1** [7-36 amide] (0.3 pmol/kg/min) or placebo (0.9% NaCl with 1% albumin) were infused i.v. (from -30 to 120 min) into 9 healthy volunteers. At 0 min, a **glucose** infusion was started that mimicked the glycemic profile after an oral **glucose** load of 50 g/400 mL and allowed for the **glucose**-dependent insulintropic action of GIP and **GLP-1** [7-36 amide]. Pentagastrin stimulated acid output significantly, but neither GIP nor **GLP-1** [7-36 amide] either alone or in combination, reduced pentagastrin-stimulated gastric acid secretion. The circulating concns. of GIP and **GLP-1** [7-36 amide] obtained at steady state during exogenous administration of synthetic peptides were similar to or higher than those reached after oral **glucose** (endogenous secretion). In conclusion, (penta)gastrin-stimulated gastric acid secretion is not inhibited by physiol. circulating concns. of GIP or **GLP-1** [7-36 amide]. Therefore, the insulintropic action of these intestinal hormones is physiol. more important than their possible role as enterogastrone.

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	E NAUCK M/AU
L44	151 S E3,E4,E10-E12
	E WAGNER F/AU
L45	262 S E3,E33,E36,E38
L46	217396 S L9,L11,L13 OR GLUCOSE
L47	1908 S L20
L48	1433 S L30
L49	1336 S L46 AND L47,L48
L50	12 S L49 AND PARENTER?
L51	3 S L50 NOT AB/FA
L52	2050 S L47 OR GASTRIC INHIBITORY () (PEPTIDE OR POLYPEPTIDE OR POLY
L53	1191 S L22 OR (GLUCAGON OR GLUCACON) () (LIKE OR RELATED) () (PEPTIDE OR
L54	1351 S L46 AND L52,L53

L55 12 S L54 AND PARENTER?  
 L56 3 S L55 NOT AB/FA  
 L57 0 S L55 AND COMPOSITION  
 L58 15 S L54 AND COMPOSITION  
 L59 1 S L58 AND (7()36)/TI  
 L60 468 S L54 AND 132?/CC  
 L61 398 S L60 AND PY<=1995  
 L62 100 S L61 AND 125?/CC  
 L63 8 S L61 AND COMPOS?  
 L64 20 S L61 AND 7() (34 OR 35 OR 36 OR 37)  
 L65 2 S L64 AND INTRADUODEN?  
 L66 90 S L44,L45 AND L46  
 L67 41 S L66 AND L54  
 L68 23 S L67 AND PY<=1995  
 L69 26 S L59,L65,L68  
 L70 8 S L69 AND 00520/CC  
 L71 8 S L69 AND (CONFERENC? OR CONGRESS? OR POSTER? OR SYMPOS? OR MEE  
 L72 9 S L70,L71,L59,L65

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L72 ANSWER 1 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
 AN 1997:427863 BIOSIS  
 DN PREV199799727066  
 TI Plasma **glucagon-like peptide-1** (7-36) amide (GLP-1) response in healthy volunteers to liquid phase, solid phase and meals of differing lipid **composition**.  
 AU Brynes, Audrey E.; Frost, Gary S.; Edwards, C. Mark B.; Ghattei, Mohammad A.; Bloom, Stephen R.  
 CS Dep. Nutrition and Dietetics, Hammersmith Hosp., London W12 0HS UK  
 SO **Proceedings of the Nutrition Society**, (1997) Vol. 56, No. 2, pp. 224A.  
 Meeting Info.: **Joint Meeting of the Clinical Nutrition and Metabolism Group of the Nutrition Society and the British Association for Parenteral and Enteral Nutrition** Blackpool, England, UK December 3-5, 1996  
 ISSN: 0029-6651.  
 DT **Conference; Abstract**  
 LA English  
 CC **General Biology - Symposia, Transactions and Proceedings of Conferences, Congresses, Review Annuals 00520**  
 Biochemical Studies - Proteins, Peptides and Amino Acids \*10064  
 Metabolism - Proteins, Peptides and Amino Acids \*13012  
 Nutrition - General Studies, Nutritional Status and Methods \*13202  
 Nutrition - General Dietary Studies \*13214  
 Nutrition - Lipids \*13222  
 Digestive System - Physiology and Biochemistry \*14004  
 Endocrine System - Pancreas \*17008  
 BC Hominidae \*86215  
 IT Major Concepts  
 Biochemistry and Molecular Biophysics; Digestive System (Ingestion and Assimilation); Endocrine System (Chemical Coordination and Homeostasis); Metabolism; Nutrition  
 IT Chemicals & Biochemicals  
 GLUCAGON; INSULIN; **GLUCOSE**  
 IT Miscellaneous Descriptors  
 DIGESTIVE SYSTEM; ENDOCRINE SYSTEM; **GLUCAGON-LIKE PEPTIDE-1; GLUCOSE; INSULIN; LIPID; LIQUID MEAL; MEAL LIPID COMPOSITION; NUTRITION; PLASMA; SOLID MEAL**  
 ORGN Super Taxa  
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia  
 ORGN Organism Name  
 human (Hominidae)

ORGN Organism Superterms  
     animals; chordates; humans; mammals; primates; vertebrates  
 RN 9007-92-5 (GLUCAGON)  
     9004-10-8 (INSULIN)  
     50-99-7 (GLUCOSE)  
  
 L72 ANSWER 2 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
 AN 1995:424763 BIOSIS  
 DN PREV199598439063  
 TI **Glucagon-like peptide 1** (7-36  
     amide) lowers blood **glucose** also in type-1-diabetic patients.  
 AU Willms, B. (1); Kleine, Nicola; Creutzfeldt, W.; Orskov, C.; Holst, J.;  
     Nauck, M.  
 CS (1) Bad Lauterberg im Harz, Goettingen Germany  
 SO Diabetologia, (1995) Vol. 38, No. SUPPL. 1, pp. A40.  
     Meeting Info.: **31st Annual Meeting of the European Association for**  
     **the Study of Diabetes** Stockholm, Sweden September 12-16, 1995  
     ISSN: 0012-186X.  
 DT **Conference**  
 LA English  
 CC **General Biology - Symposia, Transactions and Proceedings of**  
     **Conferences, Congresses, Review Annuals 00520**  
     Biochemical Studies - Proteins, Peptides and Amino Acids \*10064  
     Biochemical Studies - Carbohydrates \*10068  
     Metabolism - Carbohydrates \*13004  
     Metabolism - Metabolic Disorders \*13020  
     Endocrine System - Pancreas \*17008  
 BC Hominidae \*86215  
 IT Major Concepts  
     Biochemistry and Molecular Biophysics; Endocrine System (Chemical  
     Coordination and Homeostasis); Metabolism  
 IT Chemicals & Biochemicals  
     GLUCAGON; AMIDE; **GLUCOSE**  
 IT Miscellaneous Descriptors  
     **MEETING ABSTRACT**  
 ORGN Super Taxa  
     Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia  
 ORGN Organism Name  
     Hominidae (Hominidae)  
 ORGN Organism Superterms  
     animals; chordates; humans; mammals; primates; vertebrates  
 RN 9007-92-5 (GLUCAGON)  
     17655-31-1 (AMIDE)  
     50-99-7 (GLUCOSE)  
  
 L72 ANSWER 3 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
 AN 1995:218176 BIOSIS  
 DN PREV199598232476  
 TI **Glucagon-like peptide-1** and  
     **glucose**-dependent insulin-releasing polypeptide plasma levels in  
     response to nutrients.  
 AU Herrmann, Christine; Goeke, Ruediger; Richter, Gerd; Fehmann, Hans-C.;  
     Arnold, Rudolf; Goeke, Burkhard (1)  
 CS (1) Clin. Res. Unit. Gastrointestinal Endocrinol., Dep. Intern. Med.,  
     Philipps Univ. Marburg, Baldingerstrasse, D-35033 Marburg Germany  
 SO Digestion, (1995) Vol. 56, No. 2, pp. 117-126.  
     ISSN: 0012-2823.  
 DT Article  
 LA English  
 AB The nutrient-dependent **glucagon-like peptide**  
     **-1** (7-36) amide (GLP-1 release was studied  
     in comparison to the **glucose**-dependent insulin-releasing  
     polypeptide (GIP) response in 10 healthy volunteers each  
     undergoing various protocols. Plasma samples were saved up to 120 min  
     after challenges by oral, intravenous or **intraduodenal**  
     administration of nutrients. Basal plasma-GLP-1 concentrations ranged

between 0.4 and 1.4 pM, maximal postprandial GLP-1 levels peaked between 10 and 12 pM. Intravenous **glucose** (25 g i.v.) did not change basal GLP-1 levels. Oral administration of **glucose** (50 g) induced a biphasic GLP-1 release peaking at 30-60 min and a biphasic **GIP** release peaking at 5 and 45 min. This increase paralleled the secretion of insulin. Oral galactose (100 g) and amino acids (25 g) also induced a rapid plasma GLP-1 response. After fat (67 g corn oil) a strong and long-lasting (gt 120 min) increase of GLP-1 plasma levels occurred. When a mixed liquid meal was given (6 g soybean oil, 5 g casein, 13 g **glucose**) immunoreactive (IR)-GLP-1 rapidly increased and peaked after 5 min with declining levels after 30 min. In response to an **intraduodenal** infusion of a small **glucose** load (5.34 g within 120 min) a rapid, short-lasting GLP-1 response occurred whereas plasma **GIP** and insulin levels remained unaltered. Luminal perfusion of an isolated vascularly perfused rat ileum with a polydiet induced a rapid rise of portally released IR-GLP-1 which was followed by a sustained release. **Glucose** evoked sodium-dependently a sharp increase of IR-GLP-1 levels followed by a plateau release. The intraluminal infusion of a mixture of amino acids or fat was without any effect on IR-GLP-1. We hypothesize that in contrast to **GIP** the GLP-1 release from L cells is triggered by nervous reflexes, by putative humoral factor(s) being released from the upper small intestine in addition to nutrient stimuli acting at the luminal surface of the gut.

- CC Cytology and Cytochemistry - Human \*02508  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
**Nutrition - General Studies, Nutritional Status and Methods**  
**\*13202**  
 Digestive System - Physiology and Biochemistry \*14004  
 Endocrine System - Pancreas \*17008  
 Endocrine System - Neuroendocrinology \*17020  
 Nervous System - Physiology and Biochemistry \*20504
- BC Hominidae \*86215
- IT Major Concepts  
 Cell Biology; Digestive System (Ingestion and Assimilation); Endocrine System (Chemical Coordination and Homeostasis); Nervous System (Neural Coordination); Nutrition
- IT Chemicals & Biochemicals  
 GLUCAGON; **GLUCOSE**; INSULIN
- IT Miscellaneous Descriptors  
**GASTRIC INHIBITORY PEPTIDE**; L-CELL
- ORGN Super Taxa  
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia
- ORGN Organism Name  
 human (Hominidae)
- ORGN Organism Superterms  
 animals; chordates; humans; mammals; primates; vertebrates
- RN 9007-92-5 (GLUCAGON)  
**50-99-7 (GLUCOSE)**  
 9004-10-8 (INSULIN)
- L72 ANSWER 4 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
 AN 1995:93920 BIOSIS  
 DN PREV199598108220  
 TI **GIP** and GLP-1(7-36)amide secretion in response to **intraduodenal** nutrient infusions in pigs.  
 AU Knapper, J. M. E. (1); Morgan, L. M. (1); Fletcher, J. M.; Marks, V. (1)  
 CS (1) Nutritional Metabolism Research Group, Sch. Biol. Sci., Univ. Surrey, Guildford GU2 5XH UK  
 SO **Proceedings of the Nutrition Society**, (1994) Vol. 53, No. 3, pp. 228A.  
 Meeting Info.: **Scientific Meeting of the Nutrition Society**  
 Southampton, England, UK August 2-5, 1994  
 ISSN: 0029-6651.
- DT **Conference**  
 LA English  
 CC **General Biology - Symposia, Transactions and Proceedings of**



**Conferences, Congresses, Review Annuals 00520**  
 Biochemical Methods - Proteins, Peptides and Amino Acids \*10054  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
 Biochemical Studies - Lipids 10066  
 Biochemical Studies - Carbohydrates 10068  
 Biophysics - Molecular Properties and Macromolecules \*10506  
 Movement \*12100  
 Metabolism - Carbohydrates \*13004  
 Metabolism - Proteins, Peptides and Amino Acids \*13012  
**Nutrition - General Studies, Nutritional Status and Methods**  
**\*13202**  
**Nutrition - General Dietary Studies \*13214**  
**Nutrition - Carbohydrates \*13220**  
**Nutrition - Lipids \*13222**  
**Nutrition - Proteins, Peptides and Amino Acids \*13224**  
 Digestive System - General; Methods \*14001  
 Digestive System - Physiology and Biochemistry \*14004  
 Endocrine System - General \*17002  
 Endocrine System - Pancreas \*17008  
 Routes of Immunization, Infection and Therapy \*22100

BC Suidae \*85740

IT Major Concepts  
 Biochemistry and Molecular Biophysics; Digestive System (Ingestion and Assimilation); Endocrine System (Chemical Coordination and Homeostasis); Metabolism; Methods and Techniques; Nutrition; Physiology

IT Chemicals & Biochemicals  
**GLUCOSE; GLUCAGON**

IT Miscellaneous Descriptors  
 CARBOHYDRATE; FAT; **GLUCAGON-LIKE PEPTIDE**  
**1 ACTIVE TRUNCATED FORM; GLUCOSE-DEPENDENT**  
**INSULINOTROPIC POLYPEPTIDE; GUT HORMONE SECRETION;**  
**MEETING ABSTRACT; POSTPRANDIAL METABOLISM**

ORGN Super Taxa  
 Suidae: Artiodactyla, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name  
 Suidae (Suidae)

ORGN Organism Superterms  
 animals; artiodactyls; chordates; mammals; nonhuman vertebrates;  
 nonhuman mammals; vertebrates

RN **50-99-7 (GLUCOSE)**  
 9007-92-5 (GLUCAGON)

L72 ANSWER 5 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
 AN 1994:462728 BIOSIS  
 DN PREV199497475728  
 TI Release of GLP-1 (7-36 amide) after oral **glucose** in relation to **glucose** tolerance and sex.  
 AU Nauck, M. (1); Erpenstein, A.; Holst, J. J.; Orskov, C.; Von Boxberg, C.; Wirtz, G.; Tillil, H.; Koebberling, J.; Creutzfeldt, W.  
 CS (1) Bochum Germany  
 SO Diabetologia, (1994) Vol. 37, No. SUPPL. 1, pp. A118.  
 Meeting Info.: **30th Annual Meeting of the European Association for the Study of Diabetes** Duesseldorf, Germany September 27-October 1, 1994  
 ISSN: 0012-186X.

DT **Conference**  
 LA English

CC **General Biology - Symposia, Transactions and Proceedings of**  
**Conferences, Congresses, Review Annuals 00520**  
 Genetics and Cytogenetics - Sex Differences \*03510  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
 Biochemical Studies - Carbohydrates 10068  
 Pathology, General and Miscellaneous - Diagnostic \*12504  
 Metabolism - Carbohydrates \*13004  
 Metabolism - Proteins, Peptides and Amino Acids \*13012  
 Metabolism - Metabolic Disorders \*13020

Digestive System - Physiology and Biochemistry \*14004  
 Endocrine System - Pancreas \*17008  
 Pharmacology - Clinical Pharmacology \*22005  
 Pharmacology - Endocrine System \*22016

BC Hominidae \*86215

IT Major Concepts  
 Digestive System (Ingestion and Assimilation); Endocrine System  
 (Chemical Coordination and Homeostasis); Genetics; Metabolism;  
 Pathology; Pharmacology

IT Chemicals & Biochemicals  
 AMIDE; **GLUCOSE**; GLUCAGON

IT Miscellaneous Descriptors  
 DIABETES; DIAGNOSTIC-DRUG; **GLUCAGON-LIKE**  
**PEPTIDE I**; **GLUCOSE**; **MEETING**  
**ABSTRACT**; **MEETING POSTER**

ORGN Super Taxa  
 Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia

ORGN Organism Name  
 human (Hominidae)

ORGN Organism Superterms  
 animals; chordates; humans; mammals; primates; vertebrates

RN 17655-31-1 (AMIDE)  
**50-99-7 (GLUCOSE)**  
 9007-92-5 (GLUCAGON)

L72 ANSWER 6 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS

AN 1994:102263 BIOSIS

DN PREV199497115263

TI Normalization of fasting hyperglycaemia by exogenous **glucagon-**  
**like peptide 1** (7-36) amide in type 2  
 (non-insulin-dependent) diabetic patients.

AU **Nauck, M. A. (1)**; Kleine, N.; Orskov, C.; Holst, J. J.; Willms,  
 B.; Creutzfeldt, W.

CS (1) Div. Gastroenterol. and Endocrinol., Dep. Med., Georg August Univ.,  
 D-37073 Goettingen Germany

SO Digestion, (1993) Vol. 54, No. 6, pp. 389.  
 Meeting Info.: **International Symposium on Glucagon-Like Peptide-1**  
 Copenhagen, Denmark May 17-19, 1993  
 ISSN: 0012-2823.

DT Article

LA English

CC **General Biology - Symposia, Transactions and Proceedings of**  
**Conferences, Congresses, Review Annuals 00520**  
 Biochemical Studies - General 10060  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
 Biochemical Studies - Carbohydrates 10068  
 Pathology, General and Miscellaneous - Therapy \*12512  
 Metabolism - Carbohydrates \*13004  
 Metabolism - Metabolic Disorders \*13020  
 Digestive System - Physiology and Biochemistry \*14004  
 Endocrine System - Pancreas \*17008  
 Pharmacology - Drug Metabolism; Metabolic Stimulators \*22003  
 Pharmacology - Clinical Pharmacology \*22005

BC Hominidae \*86215

IT Major Concepts  
 Digestive System (Ingestion and Assimilation); Endocrine System  
 (Chemical Coordination and Homeostasis); Metabolism; Pathology;  
 Pharmacology

IT Chemicals & Biochemicals  
 METFORMIN; ACARBOSE; INSULIN; C PEPTIDE; GLUCAGON; **GLUCOSE**;  
 INCRETIN

IT Miscellaneous Descriptors  
 ACARBOSE; ANTIDIABETIC-DRUG; C PEPTIDE; GLUCAGON; **GLUCOSE**;  
 HYPERGLYCEMIA; INCRETIN HORMONE; INSULIN; METABOLIC-DRUG; METFORMI  
 SULFONYLUREA; THERAPY

ORGN Super Taxa

Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia  
ORGN Organism Name  
    human (Hominidae)  
ORGN Organism Superterms  
    animals; chordates; humans; mammals; primates; vertebrates  
RN 657-24-9 (METFORMIN)  
    56180-94-0 (ACARBOSE)  
    9004-10-8 (INSULIN)  
    59112-80-0 (C PEPTIDE)  
    9007-92-5 (GLUCAGON)  
    **50-99-7 (GLUCOSE)**  
    54241-84-8 (INCRETIN)  
  
L72 ANSWER 7 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
AN 1994:1376 BIOSIS  
DN PREV199497014376  
TI Insulinotropic actions of **GIP** and GLP-1 (7-36 amide), but not of  
CCK-8 at physiologically elevated amino acid concentrations.  
AU **Nauck, M. A. (1);** Fieseler, P.; Orskov, C.; Holst, J. J.;  
Nustede, R.; Martell, J.  
CS (1) Dep. Med., Georg-August-Univ., Goettingen Germany  
SO Diabetologia, (1993) Vol. 36, No. SUPPL. 1, pp. A48.  
Meeting Info.: **29th Annual Meeting of the European Association for**  
**the Study of Diabetes** Istanbul, Turkey September 6-10, 1993  
ISSN: 0012-186X.  
DT **Conference**  
LA English  
CC **General Biology - Symposia, Transactions and Proceedings of**  
**Conferences, Congresses, Review Annuals 00520**  
Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
Biochemical Studies - Carbohydrates 10068  
Metabolism - Proteins, Peptides and Amino Acids \*13012  
Nutrition - Proteins, Peptides and Amino Acids \*13224  
Digestive System - Physiology and Biochemistry \*14004  
Blood, Blood-Forming Organs and Body Fluids - Blood and Lymph Studies  
\*15002  
Endocrine System - Pancreas \*17008  
Endocrine System - Neuroendocrinology \*17020  
Nervous System - Physiology and Biochemistry \*20504  
BC Hominidae \*86215  
IT Major Concepts  
    Blood and Lymphatics (Transport and Circulation); Digestive System  
    (Ingestion and Assimilation); Endocrine System (Chemical Coordination  
    and Homeostasis); Metabolism; Nervous System (Neural Coordination);  
    Nutrition  
IT Chemicals & Biochemicals  
    AMIDE; CCK-8; CHOLECYSTOKININ-8; GLUCAGON; **GLUCOSE**  
IT Miscellaneous Descriptors  
    CHOLECYSTOKININ-8; GLUCAGON-LIKE INSULINOTROPIC PEPTIDE;  
    **GLUCAGON-LIKE PEPTIDE 1;**  
    **MEETING ABSTRACT; PANCREATIC GLUCAGON; PLASMA GLUCOSE**  
    ; PROTEIN MEAL  
ORGN Super Taxa  
    Hominidae: Primates, Mammalia, Vertebrata, Chordata, Animalia  
ORGN Organism Name  
    human (Hominidae)  
ORGN Organism Superterms  
    animals; chordates; humans; mammals; primates; vertebrates  
RN 17655-31-1 (AMIDE)  
    25126-32-3 (CCK-8)  
    25126-32-3 (CHOLECYSTOKININ-8)  
    9007-92-5 (GLUCAGON)  
    **50-99-7 (GLUCOSE)**  
  
L72 ANSWER 8 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
AN 1991:536190 BIOSIS

DN BR41:125925  
 TI INSULINOTROPHIC EFFECTS OF A COMBINATION OF HUMAN SYNTHETIC **GIP**  
 AND GLP-1 7-36 AMIDE AT PHYSIOLOGICAL PLASMA **GLUCOSE** IN MAN.  
 AU **NAUCK M**; BARTELS E; ORSKOV C; EBERT R; CREUTZFELDT W  
 CS DEP. MED., GEORG-AUGUST-UNIV., GOETTINGEN, GER.  
 SO 27TH ANNUAL **MEETING** OF THE EUROPEAN ASSOCIATION FOR THE STUDY OF  
 DIABETES, DUBLIN, IRELAND, SEPTEMBER 10-14, 1991. DIABETOLOGIA. (1991) 34  
 (SUPPL 2), A14.  
 CODEN: DBTG AJ. ISSN: 0012-186X.  
 DT **Conference**  
 FS BR; OLD  
 LA English  
 CC **General Biology - Symposia, Transactions and Proceedings of**  
**Conferences, Congresses, Review Annuals 00520**  
 Biochemical Methods - Proteins, Peptides and Amino Acids 10054  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
 Metabolism - Carbohydrates 13004  
 Metabolism - Metabolic Disorders 13020  
 Digestive System - Physiology and Biochemistry \*14004  
 Endocrine System - General \*17002  
 Endocrine System - Pancreas \*17008  
 Immunology and Immunochemistry - General; Methods 34502  
 BC Hominidae 86215  
 IT Miscellaneous Descriptors  
**ABSTRACT GASTRIC INHIBITORY**  
**PEPTIDE GLUCAGON LIKE PEPTIDE DIABETES DIABETES MELLITUS**  
**RADIOIMMUNOASSAY**  
 RN **50-99-7 (GLUCOSE)**  
 17655-31-1 (AMIDE)  
 96352-57-7 (GLUCAGON LIKE PEPTIDE)

L72 ANSWER 9 OF 9 BIOSIS COPYRIGHT 2000 BIOSIS  
 AN 1988:476775 BIOSIS  
 DN BR35:106665  
 TI INSULINOTROPIC ACTIVITY OF SYNTHETIC HUMAN **GIP** IN MAN.  
 AU **NAUCK M**; STRIETZEL J; EBERT R; CREUTZFELDT W  
 CS DIV. GASTROENTEROL. ENDOCRINOL., DEP. MED., UNIV. GOETTINGEN, GOETTINGEN,  
 FRG.  
 SO 24TH ANNUAL **MEETING** OF THE EUROPEAN ASSOCIATION FOR THE STUDY OF  
 DIABETES, PARIS, FRANCE, SEPTEMBER 5-8, 1988. DIABETOLOGIA. (1988) 31 (7),  
 525A.  
 CODEN: DBTG AJ. ISSN: 0012-186X.  
 DT **Conference**  
 FS BR; OLD  
 LA English  
 CC **General Biology - Symposia, Transactions and Proceedings of**  
**Conferences, Congresses, Review Annuals 00520**  
 Clinical Biochemistry; General Methods and Applications \*10006  
 Biochemical Studies - Proteins, Peptides and Amino Acids 10064  
 Biochemical Studies - Carbohydrates 10068  
 Metabolism - Carbohydrates \*13004  
 Metabolism - Proteins, Peptides and Amino Acids \*13012  
 Endocrine System - Pancreas \*17008  
 Dental and Oral Biology - General; Methods 19001  
 BC Hominidae 86215  
 IT Miscellaneous Descriptors  
**ABSTRACT GLUCOSE-DEPENDENT**  
**INSULINOTROPIC POLYPEPTIDE ORAL GLUCOSE**  
 RN **50-99-7 (GLUCOSE)**

=> fil embase

FILE COVERS 1974 TO 6 Apr 2000 (20000406/ED)

EMBASE has been reloaded. Enter HELP RLOAD for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his l73-

(FILE 'BIOSIS' ENTERED AT 13:12:16 ON 10 APR 2000)

FILE 'BIOSIS' ENTERED AT 13:32:40 ON 10 APR 2000

FILE 'EMBASE' ENTERED AT 13:32:58 ON 10 APR 2000

L73 168442 S L46  
L74 2534 S L52 OR L53  
L75 2734 S L74 OR (GLUCAGON OR GLUCACON) () LIKE () (PEPTIDE OR POLYPEPTIDE  
L76 1308 S L73 AND L75  
L77 16 S L76 AND ?PARENTERAL?  
L78 12 S L77 AND PY<=1995  
L79 2 S L78 AND (PROLONGED)/TI  
E NAUCK M/AU  
L80 133 S E3,E4  
E WAGNER F/AU  
L81 208 S E3,E4  
L82 39 S L76 AND L80,L81  
L83 19 S L82 AND PY<=1995  
L84 19 S L83 NOT L77  
L85 12 S L84 AND INFUS?  
L86 14 S L79,L85  
L87 7 S L84 NOT L86

FILE 'EMBASE' ENTERED AT 13:43:41 ON 10 APR 2000

=> d all tot l86

L86 ANSWER 1 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.  
AN 95159725 EMBASE  
DN 1995159725  
TI Pharmacokinetic, insulintropic, and glucagonostatic properties of GLP-1  
[7-36 amide] after subcutaneous injection in healthy volunteers.  
Dose-response-relationships.  
AU Ritzel R.; Orskov C.; Holst J.J.; Nauck M.A.  
CS Department of Medicine, Ruhr-University Bochum, Knappschafts-Krankenhaus,  
In der Schornau 23-25,D-44892 Bochum, Germany  
SO Diabetologia, (1995) 38/6 (720-725).  
ISSN: 0012-186X CODEN: DBTGAJ  
CY Germany  
DT Journal; Article  
FS 003 Endocrinology  
006 Internal Medicine  
037 Drug Literature Index  
LA English  
SL English  
AB Intravenous infusions of glucagon-like  
peptide 1 (GLP-1) [7-36 amide] are glucose  
-dependently insulintropic and glucagonostatic and normalize plasma  
glucose concentrations in non-insulin-dependent diabetic patients.  
It was the aim of this study to investigate whether subcutaneous GLP-1  
[7-36 amide] also has an influence on insulin and glucagon secretion, and  
which doses are required for significant effects. Therefore, eight healthy  
volunteers (24 .+- . 2 years, body mass index [BMI] 21.9 .+- . 2.3 kg/m2)  
were studied in the fasting state on five occasions in randomized order.  
Placebo (0.9% NaCl with 1% human serum albumin) or GLP-1 1:7-36 amide] in

doses of 0.15, 0.5, 1.5 or 4.5 nmol/kg body weight (volume 1 ml or, at the highest dose, 2 ml) was administered subcutaneously. An intravenous **glucose** bolus (0.33 g/kg body weight) was injected 30 min later. Blood was drawn for the measurement of **glucose**, insulin, C-peptide, GLP-1 [7-36 amide], and glucagon using specific radioimmunoassays. There were dose-related increments in GLP-1 [7-36 amide] concentrations ( $p < 0.0001$ ). However, basal values were reached again after 90-120 min. Before **glucose** administration, insulin ( $p < 0.0001$ ) and C-peptide ( $p < 0.0004$ ) increased, whereas glucagon ( $p = 0.0018$ ) and **glucose** ( $p < 0.0001$ ) decreased in a dose-dependent manner. After **glucose** stimulation, integrated increments in insulin ( $p = 0.0007$ ) and C-peptide ( $p = 0.02$ ) were augmented and  $k(G)$ -values increased ( $p < 0.0001$ ) in a dose-related fashion. The extent of reactive hypoglycaemia was related to the GLP-1 [7-36 amide] dose. With the highest GLP-1 [7-36 amide] dose, at the time of peak plasma concentrations, most volunteers felt unwell, and nausea and vomiting were observed in four subjects. In conclusion, subcutaneous GLP-1 [7-36 amide] is also able to stimulate insulin and inhibit glucagon secretion, thereby altering **glucose** assimilation. However, with unmodified GLP-1 [7-36 amide], the duration of action is short, and with high doses side effects are common.

## CT Medical Descriptors:

\*glucagon release  
 \*insulin release  
 adult  
 article  
 clinical protocol  
 clinical trial  
 drug administration  
 drug effect  
 female  
 human  
 human experiment  
 intravenous drug administration  
 male  
 normal human  
 priority journal  
 radioimmunoassay  
 subcutaneous drug administration

## Drug Descriptors:

\*glucagon like peptide 1 [7-36] amide: PD, pharmacology  
 \*glucagon like peptide 1 [7-36] amide: DO, drug dose  
 \*glucagon like peptide 1 [7-36] amide: AD, drug administration  
 c peptide: EC, endogenous compound  
 glucagon: EC, endogenous compound  
**glucose**: EC, endogenous compound  
 insulin: EC, endogenous compound

RN (glucagon like peptide 1 [7-36]  
 amide) 119637-73-9; (c peptide) 59112-80-0; (glucagon) 11140-85-5,  
 62340-29-8, 9007-92-5; (**glucose**) 50-99-7, 84778-64-3;  
 (insulin) 9004-10-8

CO Saxon (Germany)

L86 ANSWER 2 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 95159414 EMBASE

DN 1995159414

TI Physiological augmentation of amino acid-induced insulin secretion by **GIP** and GLP-I but not by CCK-8.

AU Fieseler P.; Bridenbaugh S.; Nustede R.; Martell J.; Orskov C.; Holst J.J.; Nauck M.A.

CS Dept. of Medicine, Knappschafts-Krankenhaus, Ruhr University Bochum, In der Schornau 23-25, 44892 Bochum, Germany

SO American Journal of Physiology - Endocrinology and Metabolism, (1995) 268/5 31-5 (E949-E955).

ISSN: 0193-1849 CODEN: AJPMDD

CY United States

DT Journal; Article  
 FS 002 Physiology  
 003 Endocrinology  
 LA English  
 SL English  
 AB It was the aim of this study to test insulinitropic actions of cholecystokinin octapeptide (CCK-8), **gastric inhibitory polypeptide (GIP)**, and **glucagon-like peptide I (GLP-I)-(7-36) amide** at basal **glucose** but physiologically elevated amino acid concentrations. Therefore, in nine fasting healthy volunteers, an amino acid mixture was **infused** intravenously (12.6 g/h over 120 min). On separate occasions, from 30 to 120 min, placebo (0.9% NaCl-1% human serum albumin), synthetic sulfated CCK-8 (0.5 pmol .cntdot. kg-1 .cntdot. min-1), human **GIP** (1 pmol .cntdot. kg-1 .cntdot. min-1), or GLP-I-(7-36) amide (0.3 pmol .cntdot. kg-1 .cntdot. min-1) was **infused** intravenously to mimic physiological increments after a meal. The amino acid **infusion** lead to a small increment in plasma **glucose** from 4.8 .+- . 0.2 to 5.0 .+- . 0.2 mmol/l and significantly elevated insulin and C-peptide concentrations. **GIP** and GLP-I- (7-36) amide further stimulated insulin (1.8-fold, P = 0.0001 and 0.004, respectively) and C-peptide (1.3-fold, P = 0.0003 and 0.013, respectively), with a subsequent slight reduction in plasma **glucose** (P < 0.0001). Insulin and C-peptide then decreased again in parallel. CCK-8 was without effect on insulin and C-peptide levels. In conclusion, **GIP** and GLP-I-(7-36) amide are not only able to interact with elevated plasma **glucose** but are insulinitropic also with physiologically raised amino acid concentrations. Such an interaction could play a role after the ingestion of mixed meals. Cholecystokinin, on the other hand, is not a physiological incretin also under these conditions.

CT Medical Descriptors:  
 \*insulin release  
 adult  
 amino acid blood level  
 article  
**glucose blood level**  
**glucose metabolism**  
 hormonal regulation  
 human  
 human experiment  
 insulin like activity  
 male  
 normal human  
 priority journal  
 Drug Descriptors:  
 \*cholecystokinin octapeptide  
**\*gastric inhibitory polypeptide**  
**\*glucagon like peptide 1**  
 \*insulin: EC, endogenous compound  
**glucose: EC, endogenous compound**

RN (cholecystokinin octapeptide) 25126-32-3; (**gastric inhibitory polypeptide**) 59392-49-3; (**glucagon like peptide 1**) 89750-14-1; (insulin) 9004-10-8; (**glucose**) 50-99-7, 84778-64-3

L86 ANSWER 3 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.  
 AN 95131371 EMBASE  
 DN 1995131371  
 TI Insulinitropic actions of intravenous **glucagon-like peptide-1 (GLP-1) [7-36 amide]** in the fasting state in healthy subjects.  
 AU Qualmann C.; **Nauck M.A.**; Holst J.J.; Orskov C.; Creutzfeldt W.  
 CS Medizinische Universitätsklinik, Ruhr-Universität Bochum, Knappschafts Krankenhaus, In der Schornau 23-25, D-44892 Bochum, Germany  
 SO Acta Diabetologica, (1995) 32/1 (13-16).

ISSN: 0940-5429 CODEN: ACDAEZ

CY Germany

DT Journal; Article

FS 003 Endocrinology  
006 Internal Medicine  
029 Clinical Biochemistry  
030 Pharmacology  
037 Drug Literature Index

LA English

SL English

AB GLP-1 (7-36 amide) stimulates insulin and suppresses glucagon secretion in normal subjects and may, in pharmacological doses, normalize hyperglycaemia in type 2 diabetic patients. It is not known whether such pharmacological doses can actually lower blood **glucose** to hypoglycaemic levels. Therefore, in seven normal fasting subjects, GLP-1 (7-36 amide) was **infused** intravenously at 0.3, 0.9 and 2.7 pmol/kg per min for 30 min each. The plasma concentration of GLP-1 (7-36 amide) increased dose-dependently, but insulin secretion (insulin, C-peptide) was stimulated only marginally. Glucagon was slightly suppressed, and plasma **glucose** was reduced, but not into the hypoglycaemic range. In conclusion, when plasma **glucose** concentrations are in the normal fasting range, GLP-1 (7-36 amide) is not able to stimulate insulin secretion to a degree that causes hypoglycaemia. This should limit the risk of hypoglycaemic responses when GLP-1 (7-36 amide) is administered in pharmacological doses to reduce hyperglycaemia in type 2 diabetic patients.

CT Medical Descriptors:  
\*insulin release  
adult  
article  
clinical trial  
controlled study  
diet restriction  
dose response  
drug effect  
glucagon release  
**glucose blood level**  
human  
human experiment  
hyperglycemia  
hypoglycemia  
intravenous drug administration  
male  
non insulin dependent diabetes mellitus  
normal human  
priority journal  
Drug Descriptors:  
**\*glucagon like peptide 1 [7-36] amide: CT, clinical trial**  
**\*glucagon like peptide 1 [7-36] amide: PD, pharmacology**  
c peptide: EC, endogenous compound  
glucagon: EC, endogenous compound  
**glucose: EC, endogenous compound**  
insulin: EC, endogenous compound

RN (**glucagon like peptide 1 [7-36]**  
amide) 119637-73-9; (c peptide) 59112-80-0; (glucagon) 11140-85-5,  
62340-29-8, 9007-92-5; (**glucose**) 50-99-7, 84778-64-3;  
(insulin) 9004-10-8

CO Saxon (Germany)

L86 ANSWER 4 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 93286381 EMBASE

DN 1993286381

TI Preserved incretin effect in type 1 diabetic patients with end-stage nephropathy treated by combined heterotopic pancreas and kidney transplantation.

AU Nauck M.A.; Busing M.; Orskov C.; Siegel E.G.; Talartschik J.;



Baartz A.; Baartz T.; Hopt U.T.; Becker H.-D.; Creutzfeldt W.  
 CS Div. of Gastroenterol./Endocrinology, Department of Medicine, Georg August  
 University, Robert-Koch-Strasse 40, W-3400 Gottingen, Germany  
 SO Acta Diabetologica, (1993) 30/1 (39-45).  
 ISSN: 0940-5429 CODEN: ACDAEZ  
 CY Germany  
 DT Journal; Article  
 FS 003 Endocrinology  
 006 Internal Medicine  
 029 Clinical Biochemistry  
 LA English  
 SL English  
 AB Insulin secretion is stimulated better by oral than by intravenous  
**glucose** (incretin effect). The contribution of the autonomic  
 nervous system to the incretin effect after oral **glucose** in  
 humans is unclear. We therefore examined nine type 1 diabetic  
 (insulin-dependent) patients with end-stage nephropathy, studied after  
 combined heterotopic pancreas and kidney transplantation, and 7  
 non-diabetic kidney recipients (matched for creatinine clearance and  
 immunosuppressive medication). The release of **gastric**  
**inhibitory polypeptide** (GIP) and  
**glucagon-like peptide 1** (GLP-1)  
 immunoreactivity and B cell secretory responses (IR insulin and C-peptide)  
 to oral (50 g) and 'isoglycaemic' intravenous **glucose** (identical  
 glycaemic profile) were measured by radioimmunoassay. The difference in B  
 cell responses between the two tests represents the contribution of the  
 enteroinsular axis to the response after oral **glucose** (incretin  
 effect). Insulin responses after the oral **glucose** challenge were  
 similar in the two patient groups despite systemic venous drainage of the  
 pancreas graft in the pancreas-kidney-transplanted group. In both groups  
**GIP** and **GLP-1** increased after oral but not after intravenous  
**glucose**, and B cell secretory responses were significantly smaller  
 (by 55.2  $\pm$  7.7% and 46.5  $\pm$  12.5%, respectively) with 'isoglycaemic'  
 intravenous **glucose** infusions. The lack of reduction  
 in the incretin effect in pancreas-kidney-transplanted patients, whose  
 functioning pancreas is denervated, indicates a lesser role for the  
 nervous system and a more important contribution of circulating incretin  
 hormones in mediating the enteroinsular axis in man.  
 CT Medical Descriptors:  
 \*diabetic nephropathy: SU, surgery  
 \*insulin dependent diabetes mellitus  
 \*kidney transplantation  
 \*pancreas transplantation  
 adult  
 article  
 clinical article  
 controlled study  
 female  
 human  
 male  
 Drug Descriptors:  
 \*gastric inhibitory polypeptide: EC, endogenous compound  
 \*glucagon like peptide 1: EC, endogenous compound  
 \*glucose  
 \*insulin: EC, endogenous compound  
 RN (gastric inhibitory polypeptide)  
 59392-49-3; (glucagon like peptide  
 1) 89750-14-1; (glucose) 50-99-7,  
 84778-64-3; (insulin) 9004-10-8  
 L86 ANSWER 5 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.  
 AN 93218656 EMBASE  
 DN 1993218656  
 TI Normalization of fasting hyperglycaemia by exogenous **glucagon-**  
**like peptide 1** (7-36 amide) in Type 2  
 (non-insulin-dependent) diabetic patients.

AU **Nauck M.A.**; Kleine N.; Orskov C.; Holst J.J.; Willms B.;  
Creutzfeldt W.

CS Medizinische Klinik, Ruhr-Universität, Knappschafts-Krankenhaus, In der  
Schornau 23-25, D-44892 Bochum, Germany

SO Diabetologia, (1993) 36/8 (741-744).  
ISSN: 0012-186X CODEN: DBTGAJ

CY Germany

DT Journal; Article

FS 003 Endocrinology  
006 Internal Medicine  
030 Pharmacology  
037 Drug Literature Index

LA English

SL English

AB **Glucagon-like peptide 1 (GLP-1)**  
(7-36 amide) is a physiological incretin hormone that is released after  
nutrient intake from the lower gut and stimulates insulin secretion at  
elevated plasma **glucose** concentrations. Type 2  
(non-insulin-dependent) diabetic patients GLP-1 (7-36 amide) retains much  
of its insulinotropic action. However, it is not known whether the  
magnitude of this response is sufficient to normalize plasma  
**glucose** in Type 2 diabetic patients with poor metabolic control.  
Therefore, in 10 Type 2 diabetic patients with unsatisfactory metabolic  
control (HbA(1c) 11.6  $\pm$  1.7%) on diet and sulphonylurea therapy (in  
some patients supplemented by metformin or acarbose), 1.2 pmol x 1-1 x  
min<sup>-1</sup> GLP-1 (7-36 amide) or placebo was **infused** intravenously in  
the fasting state (plasma **glucose** 13.1  $\pm$  0.6 mmol/l). In all  
patients, insulin (by 17.4  $\pm$  4.7 nmol x 1-1 x min; p = 0.0157) and  
C-peptide (by 228.0  $\pm$  39.1 nmol x 1-1 x min; p = 0.0019) increased  
significantly over basal levels, glucagon was reduced (by -1418  $\pm$  308  
pmol x 1-1 x min) and plasma **glucose** reached normal fasting  
concentrations (4.9  $\pm$  0.3 mmol/l) within 4 h of GLP-1 (7-36 amide)  
administration, but not with placebo. When normal fasting plasma  
**glucose** concentrations were reached insulin returned towards basal  
levels and plasma **glucose** concentrations remained stable despite  
the ongoing **infusion** of GLP-1 (7-36 amide). Therefore, exogenous  
GLP-1 (7-36 amide) is an effective means of normalizing fasting  
**glucose** concentrations in poorly-controlled Type 2 diabetic  
patients. The **glucose**-dependence of insulinotropic actions of  
GLP-1 (7-36 amide) appears to be retained in such patients.

CT Medical Descriptors:  
\*caloric restriction  
\*hyperglycemia: PC, prevention  
\*non insulin dependent diabetes mellitus: DT, drug therapy  
adult  
article  
clinical article  
controlled study  
female  
human  
intravenous drug administration  
male  
priority journal  
Drug Descriptors:  
\*acarbose: DT, drug therapy  
\*c peptide: EC, endogenous compound  
\*glucagon: EC, endogenous compound  
\***glucagon like peptide**: PD, pharmacology  
\***glucose**: EC, endogenous compound  
\*insulin: EC, endogenous compound  
\*metformin: DT, drug therapy  
\*placebo  
\*sulphonylurea derivative: DT, drug therapy

RN (acarbose) 56180-94-0; (c peptide) 59112-80-0; (glucagon) 11140-85-5,  
62340-29-8, 9007-92-5; (**glucagon like peptide**  
) 82905-30-4; (**glucose**) 50-99-7, 84778-64-3; (insulin)

CO 9004-10-8; (metformin) 1115-70-4, 657-24-9  
Saxon (Germany)

L86 ANSWER 6 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 93110837 EMBASE

DN 1993110837

TI Additive insulintropic effects of exogenous synthetic human

**gastric inhibitory polypeptide** and

**glucagon-like peptide-1-(7-36)** amide

**infused** at near-physiological insulintropic hormone and

**glucose** concentrations.

AU **Nauck M.A.**; Bartels E.; Orskov C.; Ebert R.; Creutzfeldt W.

CS Gastroenterology/Endocrinology Div., Department of Internal Medicine,  
Georg August University, Robert Koch Strasse 40,D 3400 Gottingen, Germany

SO Journal of Clinical Endocrinology and Metabolism, (1993) 76/4 (912-917).

ISSN: 0021-972X CODEN: JCEMAZ

CY United States

DT Journal; Article

FS 003 Endocrinology

LA English

SL English

AB **Gastric inhibitory polypeptide (GIP**

**) and glucagon-like peptide-1**

**-(7-36)** amide (GLP-1) are **glucose**-dependent insulintropic gut hormones that may explain the greater insulin secretory response with oral compared to iv **glucose** (incretin effect). To study their

individual and combined contributions, in eight healthy volunteers, on separate occasions, synthetic human **GIP** (1 pmol/kg .cntdot. min)

and/or GLP-1 (0.3 pmol/kg .cntdot. min) or placebo were **infused**

iv (-30 to 120 min), while at 0 min, a **glucose infusion**

'isoglycemic' to the profile after an oral **glucose** load of 50

g/400 mL was started. After the administration of 50 g oral

**glucose**, immunoreactive **GIP** rose several-fold to 337

+- 43 pmol/L, while there was only a transient (10- 30 min) and moderate increment in immunoreactive GLP-1 (from basal, 25-30, to 41 +- 4

pmol/L). Isoglycemic iv **glucose infusions** led to

smaller B-cell responses (estimated incretin effect, 41 +- 5%). With

single **infusions** of **GIP** or GLP-1 (circulating

concentrations, 464 +- 73 and 54 +- 3 pmol/L, respectively), B-cell

responses were significantly augmented compared to iv **glucose**

alone and were no longer significantly different from those after oral

**glucose**. The combination of **GIP** and GLP-1 led to B-cell

responses that were significantly higher than those with either hormone

alone (additive mode of cooperation). Plasma **GIP** concentrations

were similar after endogenous secretion (oral **glucose**) and iv

**infusion**, while exogenously administered GLP- 1 led to plasma

levels that were maintained at an elevated level for a longer period

during exogenous **infusion** than after stimulation by oral

**glucose**. When, in seven volunteers, a lower dose (0.15 pmol/kg

.cntdot. min) of GLP-1 was **infused** during isoglycemic

**glucose infusion** experiments only for the duration of

elevated plasma levels in the oral **glucose** challenges (0-30

min), a significant, but transient, increment in insulin and

concentrations was observed, which was equivalent to 26 +-

estimated incretin effect. Therefore, in conclusion, circula'

**GIP** seems to make a major contribution to the incretin effec

after oral **glucose**, and GLP-1 appears to mediate a smaller

proportion. **GIP** and GLP-1 can interact in an additive manne:

normal man.

CT Medical Descriptors:

\*insulin like activity

\*oral **glucose tolerance test**

article

hormone release

human

human experiment

**intravenous glucose tolerance test**

male

normal human

pancreas islet beta cell

priority journal

Drug Descriptors:

\*c peptide: EC, endogenous compound

**\*gastric inhibitory polypeptide****\*glucagon like peptide 1 [7-36] amide****\*glucose: EC, endogenous compound**

\*insulin: EC, endogenous compound

RN (c peptide) 59112-80-0; (**gastric inhibitory polypeptide**) 59392-49-3; (**glucagon like peptide 1 [7-36] amide**) 119637-73-9; (**glucose**) 50-99-7, 84778-64-3; (insulin) 9004-10-8

L86 ANSWER 7 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 93040953 EMBASE

DN 1993040953

TI Role of endogenously released cholecystokinin in determining postprandial insulin levels in man: Effects of loxiglumide, a specific cholecystokinin receptor antagonist.

AU Baum F.; **Nauck M.A.**; Ebert R.; Cantor P.; Hoffmann G.; Choudhury A.R.; Schmidt W.E.; Creutzfeldt W.

CS Division of Gastroenterology, Department of Medicine, Georg August University, Robert-Koch-Strasse 40, D-W-3400 Gottingen, Germany

SO Digestion, (1992) 53/3-4 (189-199).

ISSN: 0012-2823 CODEN: DIGEBW

CY Switzerland

DT Journal; Article

FS 003 Endocrinology

030 Pharmacology

037 Drug Literature Index

048 Gastroenterology

LA English

SL English

AB To estimate the contribution of postprandial cholecystokinin (CCK) responses to circulating insulin concentrations and insulin secretion, a specific CCK receptor antagonist (loxiglumide; 10 mg/kg body weight/h) or saline were **infused** intravenously in normal volunteers, beginning 90 min before insulin secretion was stimulated on separate occasions by the intraduodenal administrations of **glucose**, **glucose** and protein, and **glucose** plus protein with the admixture of pancreatin. The release of CCK (radioimmunoassay) was stimulated by the protein component of the nutrients from basal 2.4  $\pm$  0.4 to 8.0  $\pm$  1.2 pmol/l. CCK plasma levels were significantly higher with loxiglumide ( $p < 0.05$ ). **Glucose-dependent insulinotropic polypeptide (GIP)** was also released by all nutrient mixtures. Loxiglumide significantly inhibited the amount of bilirubin and pancreatic enzymes recovered from duodenal aspirates. In contrast, in none of the experiments, C-peptide increments and hence insulin secretion rates were altered by loxiglumide. With **glucose** and protein as intraduodenal stimulus (no pancreatin added), the plasma amino acids rose significantly less (by approximately 50% of the control experiment) and the increment in insulin (but not C-peptide) concentrations was significantly reduced by loxiglumide. This is most likely explained by a change in insulin metabolic clearance. This effect cannot be a primary action of CCK because there was no similar effect of loxiglumide with the same intraduodenal stimulus plus added pancreatin. Pancreatic enzymes reduced maldigestion secondary to loxiglumide effects on pancreatic exocrine secretion: The increment in circulating amino acid concentrations was similar with and without loxiglumide. In conclusion, CCK does not alter insulin secretion and, therefore, is not an incretin hormone in man. Blocking CCK actions on the exocrine pancreas by loxiglumide, however, can secondarily cause reductions in postprandial insulin profiles by altering insulin clearance.

These changes are possibly related to reductions in circulating amino acid concentrations.

CT Medical Descriptors:

\*insulin release  
 \*postprandial state  
 adult  
 amino acid blood level  
 article  
 aspiration  
 cholecystokinin blood level  
 controlled study  
 drug blood level  
 drug effect  
 duodenum  
 human  
 human experiment  
 insulin blood level  
 insulin metabolism  
 intravenous drug administration  
 male  
 normal human  
 pancreas function  
 priority journal  
 volunteer

Drug Descriptors:

\*cholecystokinin receptor  
 \*cholecystokinin: EC, endogenous compound  
 \*cholecystokinin receptor blocking agent: CR, drug concentration  
 \*cholecystokinin receptor blocking agent: PD, pharmacology  
 \*cholecystokinin receptor blocking agent: DO, drug dose  
 \*insulin: EC, endogenous compound  
 \*loxiglumide: CR, drug concentration  
 \*loxiglumide: DO, drug dose  
 \*loxiglumide: PD, pharmacology  
 amino acid: EC, endogenous compound  
 bilirubin: EC, endogenous compound  
 c peptide: EC, endogenous compound  
**glucose**  
 pancreas polypeptide: EC, endogenous compound  
 pancreatin  
 protein

RN (cholecystokinin) 9011-97-6, 93443-27-7; (insulin) 9004-10-8;  
 (loxiglumide) 107097-80-3; (amino acid) 65072-01-7; (bilirubin)  
 18422-02-1, 635-65-4; (c peptide) 59112-80-0; (**glucose**)  
**50-99-7**, 84778-64-3; (pancreas polypeptide) 59763-91-6;  
 (pancreatin) 8049-47-6; (protein) 67254-75-5  
 CN (1) Cr 1505  
 CO (1) Rotta (Italy)

L86 ANSWER 8 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 93037285 EMBASE

DN 1993037285

TI Preserved incretin activity of **glucagon-like peptide 1** [7-36 amide] but not of synthetic human **gastric inhibitory polypeptide** in patients with type- 2 diabetes mellitus.

AU Nauck M.A.; Heimesaat M.M.; Orskov C.; Holst J.J.; Ebert R.; Creutzfeldt W.

CS Gastroenterology/Endocrinology Div., Department of Internal Medicine, Georg-August-Universitat, Robert-Koch-Strasse 40,D-3400 Gottingen, Germany

SO Journal of Clinical Investigation, (1993) 91/1 (301-307).

ISSN: 0021-9738 CODEN: JCINAO

CY United States

DT Journal; Article

FS 003 Endocrinology

LA English

SL English

AB In type-2 diabetes, the overall incretin effect is reduced. The present investigation was designed to compare insulinotropic actions of exogenous incretin hormones (**gastric inhibitory peptide** [**GIP**] and **glucagon-like peptide 1** [**GLP-1**] [7-36 amide]) in nine type-2 diabetic patients (fasting plasma **glucose** 7.8 mmol/liter; hemoglobin A(1c) 6.3+-.0.6%) and in nine age- and weight-matched normal subjects. Synthetic human **GIP** (0.8 and 2.4 pmol/kg .cntdot. min over 1 h each), **GLP-1** [7-36 amide] (0.4 and 1.2 pmol/kg .cntdot. min over 1 h each), and placebo were administered under hyperglycemic clamp conditions (8.75 mmol/liter) in separate experiments. Plasma **GIP** and **GLP-1** [7-36 amide] concentrations (radioimmunoassay) were comparable to those after oral **glucose** with the low, and clearly supraphysiological with the high **infusion** rates. Both **GIP** and **GLP-1** [7-36 amide] dose-dependently augmented insulin secretion (insulin, C-peptide) in both groups ( $P < 0.05$ ). With **GIP**, the maximum effect in type-2 diabetic patients was significantly lower (by 54%;  $P < 0.05$ ) than in normal subjects. With **GLP-1** [7-36 amide] type-2 diabetic patients reached 71% of the increments in C-peptide of normal subjects (difference not significant). Glucagon was lowered during hyperglycemic clamps in normal subjects, but not in type-2 diabetic patients, and further by **GLP-1** [7-36 amide] in both groups ( $P < 0.05$ ), but not by **GIP**. In conclusion, in mild type-2 diabetes, **GLP-1** [7-36 amide], in contrast to **GIP**, retains much of its insulinotropic activity. It also lowers glucagon concentrations.

CT Medical Descriptors:  
 \*non insulin dependent diabetes mellitus  
 adult  
 aged  
 article  
 clinical article  
 controlled study  
 female  
**glucose clamp technique**  
 human  
 insulin like activity  
 insulin release  
**intravenous glucose tolerance test**  
 male  
**oral glucose tolerance test**  
 priority journal  
 Drug Descriptors:  
 \*c peptide: EC, endogenous compound  
 \***gastric inhibitory polypeptide**: EC, endogenous compound  
 \*glucagon: EC, endogenous compound  
 \***glucagon like peptide 1** [7-36] amide: EC, endogenous compound  
 \***glucose**: EC, endogenous compound  
 \*insulin: EC, endogenous compound  
 hemoglobin alc: EC, endogenous compound

RN (c peptide) 59112-80-0; (**gastric inhibitory polypeptide**) 59392-49-3; (glucagon) 11140-85-5, 62340-29-8, 9007-92-5; (**glucagon like peptide 1** [7-36] amide) 119637-73-9; (**glucose**) 50-99-7, 84778-64-3; (insulin) 9004-10-8; (hemoglobin alc) 62572-11-6

L86 ANSWER 9 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 92350254 EMBASE

DN 1992350254

TI Lack of effect of synthetic human **gastric inhibitory polypeptide** and **glucagon-like peptide 1** [7-36 amide] **infused** at near-physiological concentrations on pentagastrin-stimulated gastric acid secretion in normal human subjects.

AU Nauck M.A.; Bartels E.; Orskov C.; Ebert R.; Creutzfeldt W.

CS Div Gastroenterology/Endocrinology, Department of Internal Medicine,

Georg-August-University, Robert-Koch-Strasse 40,D-W-3400 Gottingen,  
Germany

SO Digestion, (1992) 52/3-4 (214-221).

ISSN: 0012-2823 CODEN: DIGEBW

CY Switzerland

DT Journal; Article

FS 002 Physiology

037 Drug Literature Index

048 Gastroenterology

LA English

SL English

AB **Gastric inhibitory polypeptide (GIP**

**) and glucagon-like peptide 1**

[7-36 amide] (GLP-1) are **glucose**-dependent insulinitropic gut hormones. Under experimental conditions, both have been shown to reduce stimulated gastric acid secretion. To study their individual and combined effects on pentagastrin-stimulated (0.1 .mu.g/kg/h from - 90 to 120 min) gastric volume, acid and chloride output, on separate occasions, synthetic human **GIP** (1 pmol/kg/min) and/or GLP-1 [7-36 amide] (0.3 pmol/kg/min) or placebo (0.9% NaCl with 1% albumin) were **infused** intravenously (from - 30 to 120 min) in 9 healthy volunteers. At 0 min, a **glucose infusion** was started that mimicked the glycemic profile after an oral **glucose** load of 50 g/400 ml and allowed for the **glucose**-dependent insulinitropic action of **GIP** and GLP-1 [7-36 amide]. Pentagastrin stimulated acid output significantly, but neither **GIP** nor GLP-1 [7-36 amide] either alone or in combination, reduced pentagastrin-stimulated gastric acid secretion. The circulating concentrations of **GIP** and GLP-1 [7-36 amide] obtained at steady state during exogenous administration of synthetic peptides were similar to or higher than those reached after oral **glucose** (endogenous secretion). In conclusion, (penta)gastrin-stimulated gastric acid secretion is not inhibited by physiological circulating concentrations of **GIP** or GLP-1 [7-36 amide]. Therefore, the insulinitropic action of these intestinal hormones is physiologically more important than their possible role as enterogastrone.

CT Medical Descriptors:

\*drug effect

\*stomach acid secretion

adult

article

clinical article

**glucose infusion**

human

insulin release

intravenous drug administration

male

normal human

**oral glucose tolerance test**

priority journal

stomach acid

stomach volume

Drug Descriptors:

**\*gastric inhibitory polypeptide**

**\*glucagon like peptide 1 [7-36] amide**

\*pentagastrin

chloride: EC, endogenous compound

insulin: EC, endogenous compound

RN (gastric inhibitory polypeptide)

**59392-49-3; (glucagon like peptide**

**1 [7-36] amide) 119637-73-9; (pentagastrin) 5534-95-2; (chloride)**

**16887-00-6; (insulin) 9004-10-8**

CO Bissendorf (Germany)

L86 ANSWER 10 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 90002403 EMBASE

DN 1990002403  
 TI Suppression of insulin receptor binding by **prolonged** enteral or **parenteral** nutrient infusion in the rat: Role of **gastric inhibitory polypeptide**.  
 AU Baer A.R.; Dupre J.  
 CS Department of Physiology, University of Western Ontario, London, Ont., Canada  
 SO Canadian Journal of Physiology and Pharmacology, (1989) 67/9 (1105-1109). ISSN: 0008-4212 CODEN: CJPPA3  
 CY Canada  
 DT Journal; Article  
 FS 002 Physiology  
 003 Endocrinology  
 037 Drug Literature Index  
 LA English  
 SL French; English  
 AB In the rat, prolonged enteral or **parenteral** alimentation with a high-carbohydrate diet results in hyperinsulinemia, which is substantially greater with the **parenteral** route. Supplementing the **parenteral** infusate with porcine **gastric inhibitory polypeptide** (GIP) to approximate plasma immunoreactive GIP levels achieved with enteral feeding further increases steady-state plasma insulin and **glucose** concentrations, suggesting insulin resistance. We examined the effects of sustained hyperinsulinemia elicited by continuous nutrient infusion on insulin binding to isolated rat adipocytes and the modification of this response by GIP. Compared with a baseline group, both enterally and **parenterally** alimented groups showed decreased insulin receptor binding affinity. However, despite substantially different steady-state plasma insulin levels, insulin binding was similar with either infusion route. Factors other than plasma insulin concentration alone therefore contribute to insulin receptor down-regulation during prolonged enteral alimentation. Supplementing the **parenteral** infusate with exogenous GIP resulted in a further reduction in insulin receptor affinity. Thus, adaptation to continuous nutrient infusion is characterized by insulin receptor down-regulation regardless of the route of nutrient delivery. An additional suppression of insulin receptor binding may in part be responsible for the insulin resistance elicited by prolonged exogenous GIP administration.  
 CT Medical Descriptors:  
 \*adipocyte  
 \***glucose blood level**  
 \*hyperinsulinemia  
 \*insulin resistance  
 \***parenteral nutrition**  
 cell culture  
 rat  
 controlled study  
 animal experiment  
 animal cell  
 nonhuman  
 male  
 article  
 priority journal  
 Drug Descriptors:  
 \*insulin receptor  
 radioisotope  
 \***gastric inhibitory polypeptide: PD, pharmacology**  
 \*insulin: TO, drug toxicity  
 \*insulin: DO, drug dose  
 RN (**gastric inhibitory polypeptide**)  
 59392-49-3; (insulin) 9004-10-8  
 L86 ANSWER 11 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.  
 AN 89221284 EMBASE  
 DN 1989221284



TI Insulinotropic properties of synthetic human **gastric inhibitory polypeptide** in man: Interactions with **glucose**, phenylalanine, and cholecystokinin-8.

AU Nauck M.; Schmidt W.E.; Ebert R.; Strietzel J.; Cantor P.; Hoffmann G.; Creutzfeldt W.

CS Division of Gastroenterology and Endocrinology, Department of Medicine, Georg-August-University Göttingen, D-3400 Göttingen, Germany

SO Journal of Clinical Endocrinology and Metabolism, (1989) 69/3 (654-662). ISSN: 0021-972X CODEN: JCEMAZ

CY United States

DT Journal

FS 003 Endocrinology  
006 Internal Medicine  
029 Clinical Biochemistry  
048 Gastroenterology  
030 Pharmacology  
037 Drug Literature Index

LA English

SL English

AB The quantitative contribution of **glucose-dependent insulinotropic polypeptide** [**gastric inhibitory polypeptide** (GIP)] to the incretin effect after oral **glucose** (augmentation of insulin secretion over the degree that is explained by the glycemic rise) is not known. Therefore, hyperglycemic clamp experiments (8 mmol/L, corresponding to postprandial **glucose** concentrations) were performed in healthy volunteers and synthetic human GIP was **infused** for 60 min at a rate (.apprx.1.3 pmol/kg.cntdot.min) that results in plasma GIP concentrations similar to those occurring after oral **glucose** loads of 75 g. The MCR for exogenous GIP was .apprx.6 mL/kg.cntdot.min; the decay after ceasing **infusion** was exponential with a t(1/2) of about 18 min, and the resulting volume of distribution was about 140 mL/kg. At euglycemic (basal) plasma **glucose** concentrations (5.0 mmol/L) similar values were found. Insulin secretion was stimulated by hyperglycemia alone, but was greatly (2.3-fold based on C-peptide) potentiated by GIP **infusions** (P .ltoreq. 0.001 for integrated incremental values). When integrated incremental responses over 120 min of GIP, immunoreactive insulin, and immunoreactive C-peptide were compared after oral **glucose** and during GIP **infusions**, no significant differences were found. Peak **glucose** concentrations after oral **glucose** (7.6 .+- 0.6 mmol/L) were similar to mean plasma **glucose** values during clamp experiments (8.2 .+- 0.1 mmol/L; P = 0.124). However, mean **glucose** concentrations after oral **glucose** were lower (6.0 .+- 0.3 mmol/L; P = 0.0004). Additional **infusion** of sulfated cholecystokinin-8 (25 pmol/kg.cntdot.h) or the amino acid phenylalanine (1.7 .mu.mol/kg.cntdot.min) did not further stimulate insulin secretion and had no influence on the pharmacokinetics of exogenous GIP. It is concluded that human synthetic GIP is insulinotropic in man and that this activity may well explain a substantial part of the incretin effect after oral **glucose**. There is no interaction with cholecystokinin or phenylalanine in concentrations found after mixed meals.

CT Medical Descriptors:  
\*incretin  
\*insulin release  
adult  
human experiment  
human  
normal human  
male  
female  
priority journal  
Drug Descriptors:  
c peptide

\*cholecystokinin octapeptide: IT, drug interaction  
 \*gastric inhibitory polypeptide: PD, pharmacology  
 \*gastric inhibitory polypeptide: IT, drug interaction  
 \*gastric inhibitory polypeptide: PK, pharmacokinetics  
 \*glucose: IT, drug interaction  
 \*phenylalanine: IT, drug interaction  
 RN (c peptide) 59112-80-0; (cholecystokinin octapeptide) 25126-32-3; (  
 gastric inhibitory polypeptide)  
 59392-49-3; (glucose) 50-99-7, 84778-64-3;  
 (phenylalanine) 3617-44-5, 63-91-2  
 CO Peninsula (United Kingdom); Braun melsungen  
  
 L86 ANSWER 12 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.  
 AN 88175636 EMBASE  
 DN 1988175636  
 TI Lack of insulinotropic effect of endogenous and exogenous cholecystokinin  
 in man.  
 AU Reimers J.; Nauck M.; Creutzfeldt W.; Strietzel J.; Cantor P.;  
 Hoffmann G.  
 CS Division of Gastroenterology and Endocrinology, Department of Medicine,  
 Georg August University, D-3400 Gottingen, Germany  
 SO Diabetologia, (1988) 31/5 (271-280).  
 ISSN: 0012-186X CODEN: DBTGJ  
 CY Germany  
 DT Journal  
 FS 037 Drug Literature Index  
 003 Endocrinology  
 006 Internal Medicine  
 048 Gastroenterology  
 LA English  
 SL English  
 AB Intraduodenal phenylalanine administration (333 mg/min over 60 min)  
 released endogenous cholecystokinin in healthy young subjects as  
 demonstrated radioimmunologically and by intraduodenal bilirubin and  
 pancreatic enzyme output. Concomitantly, there was only a small increase  
 over basal in circulating immunoreactive-insulin and immunoreactive-C-  
 peptide concentrations. In healthy volunteers intraduodenal  
 infusions of saline (10 ml/min), glucose (333 mg/min) or  
 phenylalanine (333 mg/min) were performed for 60 min when plasma  
 glucose was clamped at approximately 8 mmol/l. Phenylalanine  
 enhanced immunoreactive-insulin and immunoreactive-C-peptide responses  
 three-fold more than did the same amount of glucose.  
 Immuno-reactive gastric inhibitory polypeptide  
 responses were small and not different after glucose and  
 phenylalanine administration. Immunoreactive cholecystokinin was  
 significantly stimulated to  $9.4 \pm 1.4$  pmol/l only by intraduodenal  
 phenylalanine. Plasma phenylalanine concentrations increased into the  
 supraphysiological range (approximately 1.5 mmol/l). Intravenous  
 infusions of phenylalanine achieving plasma concentrations of 1.2  
 mmol/stimulated insulin secretion at elevated plasma glucose  
 concentrations (approximately 8 mmol/l clamp experiments), but had no  
 effect at basal plasma glucose concentrations. A small increase  
 in cholecystokinin also was observed. Intravenous infusions of  
 synthetic sulphated cholecystokinin-8 leading to plasma concentrations in  
 the upper postprandial range (8-12 pmol/l) did not augment the  
 immunoreactive-insulin or immunoreactive-C-peptide levels during  
 hyperglycaemic clamp experiments, in the absence or presence of elevated  
 plasma phenylalanine concentrations. It is concluded that the augmentation  
 of the glucose-induced insulin release by intraduodenal  
 administration of phenylalanine cannot be related to cholecystokinin  
 release, but rather is explained by the combined effects of elevated  
 glucose and phenylalanine concentrations. In man, cholecystokinin  
 does not augment insulin secretion caused by moderate hyperglycaemia,  
 elevations of phenylalanine concentrations, or combinations thereof.  
 CT Medical Descriptors:  
 \*glucose blood level

\*hyperglycemia  
 \*insulin release  
 duodenum  
 human  
 incretin effect  
 priority journal  
 normal human  
 clinical article  
 human experiment  
 intravenous drug administration  
 Drug Descriptors:  
 \*c peptide  
 \*gastric inhibitory polypeptide  
 \*phenylalanine  
 bilirubin  
 pancreas enzyme  
 \*cholecystokinin octapeptide  
 RN (c peptide) 59112-80-0; (gastric inhibitory polypeptide) 59392-49-3; (phenylalanine) 3617-44-5, 63-91-2; (bilirubin) 18422-02-1, 635-65-4; (cholecystokinin octapeptide) 25126-32-3  
 CO Bachem (Switzerland)

L86 ANSWER 13 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.  
 AN 86106802 EMBASE  
 DN 1986106802  
 TI Reduced incretin effect in Type 2 (non-insulin-dependent) diabetes.  
 AU Nauck M.; Stockmann F.; Ebert R.; Creutzfeldt W.  
 CS Department of Medicine, Division of Gastroenterology and Metabolism, D-3400 Gottingen, Germany  
 SO Diabetologia, (1986) 29/1 (46-52).  
 CODEN: DBTGAIJ  
 CY Germany  
 DT Journal  
 FS 003 Endocrinology  
 006 Internal Medicine  
 029 Clinical Biochemistry  
 LA English  
 AB Integrated incremental immunoreactive insulin and connecting peptide responses to an oral **glucose** load of 50 g and an 'isoglycaemic' intravenous **glucose infusion**, respectively, were measured in 14 Type 2 (non-insulin-dependent) diabetic patients and 8 age- and weight-matched metabolically healthy control subjects. Differences between responses to oral and intravenous **glucose** administration are attributed to factors other than **glucose** itself (incretin effect). Despite higher **glucose** increases, immunoreactive insulin and connecting peptide responses after oral **glucose** were delayed in diabetic patients. Integrated responses were not significantly different between both groups. However, during 'isoglycaemic' intravenous **infusion**, insulin and connecting peptide responses were greater in diabetic patients than in control subjects as a consequence of the higher glycaemic stimulus. The contribution of incretin factors to total insulin responses was 72.8  $\pm$  6.9% (100% = response to oral load) in control subjects and 36.0  $\pm$  8.8% in diabetic patients (p  $\leq$  0.05). The contribution to connecting peptide responses was 58.4  $\pm$  7.6% in control subjects and 7.6  $\pm$  14.5% (p  $\leq$  0.05) in diabetic patients. Ratios of integrated insulin to connecting peptide responses suggest a reduced (hepatic) insulin extraction in control subjects after oral as compared to intravenous **glucose**. This was not the case in diabetic patients. Immunoreactive **gastric inhibitory polypeptide** responses were not different between control subjects and diabetic patients. A reduced or lost incretin effect in the face of normal **gastric inhibitory polypeptide** response in Type 2 diabetic patients may be explained by decreased sensitivity of the B cells towards the insulinotropic effect of **gastric inhibitory polypeptide** or to hyposecretion or reduced

effectiveness of as yet unidentified humoral or nervous gut factors with incretin activity.

CT Medical Descriptors:

\*incretin effect  
 \*non insulin dependent diabetes mellitus  
 insulin release  
 endocrine system  
 priority journal  
 etiology  
 biological model  
 human  
 adult

Drug Descriptors:

RN \*gastric inhibitory polypeptide  
 (gastric inhibitory polypeptide)  
 59392-49-3

L86 ANSWER 14 OF 14 EMBASE COPYRIGHT 2000 ELSEVIER SCI. B.V.

AN 86027574 EMBASE

DN 1986027574

TI Effects of **gastric inhibitory polypeptide** in the response to **prolonged parenteral** or enteral alimentation in rats.

AU Baer A.R.; Dupre J.

CS Department of Medicine, University of Western Ontario, London, Ont. N6A 5A5, Canada

SO Diabetes, (1985) 34/11 (1108-1112).

CODEN: DIAEAZ

CY United States

DT Journal

FS 037 Drug Literature Index  
 003 Endocrinology  
 048 Gastroenterology  
 030 Pharmacology

LA English

AB To examine the effects of long-term elevation of plasma **gastric inhibitory polypeptide (GIP)**, the responses to **parenteral (PA)** or enteral (EA) alimentation were studied in conscious rats with duodenal and venous cannulae. A weight-maintaining liquid diet (84% as **glucose**, 16% as amino acids) was infused at a constant rate for 6 days by either route, and daily blood samples were taken. A subset of animals receiving PA also received porcine **GIP** with the infusate (PA plus **GIP**; plateau plasma immunoreactive **GIP**, IRGIP, 610  $\pm$  120 pg/ml). With PA, plasma IRGIP did not change from basal levels, whereas with EA IRGIP rose to virtual plateau levels (mean 530  $\pm$  110 pg/ml). In the steady state, plasma immunoreactive insulin (IRI) was significantly lower with EA (mean, 153  $\pm$  5  $\mu$ U/ml) than with PA (mean, 226  $\pm$  15  $\mu$ U/ml), which in turn was lower than with PA plus **GIP** (mean, 375  $\pm$  23  $\mu$ U/ml,  $P < 0.001$  by ANOVA). A similar ranking of plasma **glucose** levels occurred in the steady state, with means of 113  $\pm$  7 (EA), 126  $\pm$  3 (PA), and 184  $\pm$  9 (PA plus **GIP**) mg/dl ( $P < 0.001$  by ANOVA). To assess the response to transient hyperglycemia in the steady state, an intravenous **glucose** bolus was given to each group on the fifth day. Peak plasma IRI levels did not differ among the three groups: however, the **glucose** disappearance rate was significantly slower with PA plus **GIP** compared with either EA or PA. Assuming that porcine **GIP** did not stimulate **glucose** production, this peptide appeared to induce hyperinsulinemia with insulin resistant **parenteral** alimentation. The contrasting features of relatively low **glucose** and insulin levels during enteral alimentation associated with high levels of endogenous IRGIP in the blood suggest either (1) that the findings depend on variations of **GIP** or its actions in the different species, or (2) that mechanisms originating in the intestine act to preserve insulin sensitivity during absorptive nutrients from the gut under physiologic conditions.

CT Medical Descriptors:  
 \*alimentation  
 \*drug blood level  
 \*drug mechanism  
 \*drug monitoring  
 \*food drug interaction  
 \*insulin resistance  
 \*insulin sensitivity  
 \*intestine absorption  
 hyperglycemia  
 hyperinsulinemia  
 plasma  
 rat  
 endocrine system  
 priority journal  
 intravenous drug administration  
 oral drug administration  
 preliminary communication  
 nonhuman  
 small intestine  
 animal experiment  
 Drug Descriptors:  
 \*gastric inhibitory polypeptide  
 \*glucose  
 \*insulin  
 RN (gastric inhibitory polypeptide)  
 59392-49-3; (glucose) 50-99-7, 84778-64-3;  
 (insulin) 9004-10-8

=> fil medline

FILE 'MEDLINE' ENTERED AT 14:01:50 ON 10 APR 2000

FILE LAST UPDATED: 7 APR 2000 (20000407/UP). FILE COVERS 1960 TO DATE.

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OLDMEDLINE, data from 1960 through 1965 from the Cumulated Index Medicus (CIM), has been added to MEDLINE. See HELP CONTENT for details.

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FILE 'EMBASE' ENTERED AT 13:43:41 ON 10 APR 2000

FILE 'MEDLINE' ENTERED AT 13:44:01 ON 10 APR 2000

L88 208876 S L46  
 L89 2502 S L75  
 L90 1230 S L88 AND L89  
 L91 880 S L90 AND PY<=1995  
 L92 44 S L91 AND ?PARENTERAL?  
 L93 23193 S (GLUCOSE (L) (AD OR PD OR TH OR PK))/CT  
 L94 28 S L92 AND L93  
 L95 294 S ((GASTRIC INHIBITORY POLYPEPTIDE) (L) (PD OR PK OR AD OR TU))/C  
 L96 5 S L95 AND L94  
 L97 7 S L94 AND GLUCAGON?

L98 15 S L92 AND GLUCAGON?  
 L99 8 S L98 NOT L97  
 L100 7689 S (GLUCAGON (L) (PD OR PK OR TU OR AD))/CT  
 L101 1 S L100 AND L94  
 L102 6 S L96,L101

FILE 'MEDLINE' ENTERED AT 14:01:50 ON 10 APR 2000

=> d all tot

L102 ANSWER 1 OF 6 MEDLINE

AN 86194059 MEDLINE

DN 86194059

TI Effect of **GIP** on insulin release to intravenous **glucose** infusion in hyperthyroid rats.

AU Muller M K; Hellwig J; Schafer A; Goebell H; Brown J C

SO HORMONE AND METABOLIC RESEARCH, (1986 Mar) 18 (3) 163-6.

Journal code: GBD. ISSN: 0018-5043.

CY GERMANY, WEST: Germany, Federal Republic of

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198608

AB Triiodothyronine induced hyperthyroidism caused significantly elevated basal and stimulated **glucose** and insulin levels in rats. The release of **Gastric Inhibitory Polypeptide** (**GIP**) following an oral **glucose** load was not significantly different between euthyroid and hyperthyroid rats. The insulin response, however, was significantly higher in hyperthyroid rats. Following intravenous **glucose** hyperthyroid rats showed a diminished insulin response when compared with euthyroid rats but intravenous infusion of **glucose** together with **GIP** caused a significantly higher insulin response in hyperthyroid rats. It is hypothesized that in hyperthyroidism there is an increased sensitivity to the insulinotropic action of **GIP** and that this mechanism could emphasize the importance of the enteroinsular axis in pathophysiological states.

CT Check Tags: Animal; Male; Support, Non-U.S. Gov't Administration, Oral

**Blood Glucose: ME, metabolism**

Disease Models, Animal

\***Gastric Inhibitory Polypeptide: PD, pharmacology**

**Glucose: AD, administration & dosage**

\***Glucose: PD, pharmacology**

Hyperthyroidism: CI, chemically induced

\*Hyperthyroidism: PP, physiopathology

**Infusions, Parenteral**

Insulin: BL, blood

\*Insulin: SE, secretion

Rats

Rats, Inbred Strains

Triiodothyronine

RN 11061-68-0 (Insulin); 50-99-7 (**Glucose**); 59392-49-3

(**Gastric Inhibitory Polypeptide**); 6893-02-3 (Triiodothyronine)

CN 0 (Blood **Glucose**)

L102 ANSWER 2 OF 6 MEDLINE

AN 86151365 MEDLINE

DN 86151365

TI The priming effect of **glucose** on the **gastric inhibitory polypeptide**-induced insulin release.

AU Jorde R; Amland P F; Burhol P G

SO SCANDINAVIAN JOURNAL OF GASTROENTEROLOGY, (1986 Jan) 21 (1) 47-50.

Journal code: UCS. ISSN: 0036-5521.

CY Norway  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Priority Journals  
EM 198606  
AB Six healthy subjects were given a 15-min intravenous infusion of **gastric inhibitory polypeptide (GIP)** in a dose of 1.0 microgram X kg<sup>-1</sup> X h<sup>-1</sup> at a mean blood **glucose** level of 4.9 mmol/l after a priming infusion with **glucose**. A significant insulin release was seen during the **GIP** infusion, an effect that could not be demonstrated without the priming **glucose** infusion.

CT Check Tags: Female; Human; Male; Support, Non-U.S. Gov't  
Adult  
Blood Glucose: AN, analysis  
Gastric Inhibitory Polypeptide: BL, blood  
\*Gastric Inhibitory Polypeptide: PD, pharmacology  
Glucose: AD, administration & dosage  
\*Glucose: PD, pharmacology  
Infusions, Parenteral  
Insulin: BL, blood  
\*Insulin: SE, secretion  
Time Factors

RN 11061-68-0 (Insulin); 50-99-7 (Glucose); 59392-49-3  
(Gastric Inhibitory Polypeptide)

CN 0 (Blood Glucose)

L102 ANSWER 3 OF 6 MEDLINE  
AN 86008905 MEDLINE  
DN 86008905  
TI Effects of atropine and **gastric inhibitory polypeptide** on hepatic **glucose** uptake and insulin extraction in conscious dogs.  
AU Chap Z; Ishida T; Chou J; Lewis R; Hartley C; Entman M; Field J B  
NC AM 25253 (NIADDK)  
AM 27685 (NIADDK)  
SO JOURNAL OF CLINICAL INVESTIGATION, (1985 Sep) 76 (3) 1174-81.  
Journal code: HS7. ISSN: 0021-9738.  
CY United States  
DT Journal; Article; (JOURNAL ARTICLE)  
LA English  
FS Abridged Index Medicus Journals; Priority Journals; Cancer Journals  
EM 198601  
AB Previous studies comparing the effects of oral, intraportal, and peripheral venous administration of **glucose** in conscious dogs demonstrated a significant increase in hepatic extraction of insulin only after oral **glucose**, but similar hepatic uptake of **glucose** after oral and intraportal **glucose**, which was greater than that after peripheral intravenous **glucose** infusion. This study evaluated the effect of atropine blockade of the parasympathetic nervous system on the increased fractional hepatic extraction of insulin and the role of **gastric inhibitory polypeptide (GIP)** on augmented hepatic uptake of oral **glucose** in conscious dogs with chronically implanted Doppler flow probes on the portal vein and hepatic artery, and catheters in the portal and hepatic veins and carotid artery. Since atropine infusion decreased absorption of **glucose**, and in order to achieve comparable portal vein levels of **glucose** and insulin, the dogs receiving atropine were given 1.9 +/- 0.1 g/kg **glucose**, compared with the control dogs who received 1.1 +/- 0.1 g/kg. The percentage of the **glucose** load that was absorbed was greater in the dogs not given atropine (80 +/- 4 vs. 44 +/- 7%), but because of the different loads, the absolute amount of **glucose** absorbed was similar in both groups (20.2 +/- 1.6 vs. 21.7 +/- 4.1 g). Although delayed by atropine, the peak portal vein **glucose** and insulin concentrations and the amounts presented to the liver were similar in both groups. However, the increased portal vein

plasma flow and fractional hepatic extraction of insulin observed after oral **glucose** was not observed in the dogs infused with atropine. The net hepatic **glucose** uptake after oral **glucose** was significantly less at 10, 20, and 45 min in the atropine-treated dogs, and the area under the curve over the 180-min period was 44% less. However, the latter was not statistically significant. Infusion of **GIP** with peripheral intravenous **glucose** did not increase hepatic uptake of **glucose** or the fractional hepatic extraction of insulin compared with peripheral intravenous **glucose** alone. These results indicate an important role for parasympathetic innervation in the augmented fractional hepatic extraction of insulin, and increased portal vein plasma flow after oral **glucose**. Although a relationship between the augmented fractional extraction of insulin and the net hepatic **glucose** uptake may exist, it does not necessarily indicate that the former is required for the latter. Such parasympathetic innervation may be involved in the greater removal of **glucose** by the liver after oral compared with peripheral **glucose** administration. (ABSTRACT TRUNCATED AT 400 WORDS)

CT Check Tags: Animal; Female; Male; Support, U.S. Gov't, P.H.S.  
Administration, Oral

Atropine: AD, administration & dosage

\*Atropine: PD, pharmacology

Blood Glucose: ME, metabolism

Dogs

Gastric Inhibitory Polypeptide: AD, administration & dosage

\*Gastric Inhibitory Polypeptide: PD, pharmacology

Glucose: AD, administration & dosage

\*Glucose: ME, metabolism

Hepatic Artery

Hepatic Veins

Infusions, Parenteral

\*Insulin: BL, blood

\*Liver: ME, metabolism

Portal Vein

RN 11061-68-0 (Insulin); 50-99-7 (Glucose); 51-55-8 (Atropine);  
59392-49-3 (Gastric Inhibitory Polypeptide)

CN 0 (Blood Glucose)

L102 ANSWER 4 OF 6 MEDLINE

AN 85218446 MEDLINE

DN 85218446

TI Effect of intravenously infused porcine **GIP** on serum insulin in obese and lean subjects studied with the hyperglycemic clamp technique.

AU Amland P F; Jorde R; Burhol P G; Giercksky K E

SO SCANDINAVIAN JOURNAL OF GASTROENTEROLOGY, (1985 Apr) 20 (3)  
309-14.

Journal code: UCS. ISSN: 0036-5521.

CY Norway

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Priority Journals

EM 198509

AB To ascertain whether an altered sensitivity to **gastric inhibitory polypeptide** (**GIP**) in morbidly obese subjects can play a role in the postprandial hyperinsulinemia seen in this condition, eight obese and eight control subjects were studied with an intravenous infusion of porcine **GIP**. The blood **glucose** was maintained at 4 mmol/l above the basal level by a hyperglycemic clamp technique. Although the mean serum insulin level was higher in the obese group throughout the study, the shapes of the serum insulin curves were almost identical in the two groups after the **GIP** infusion. This together with the normal **GIP** secretion found in obese subjects question the existence of a causal relationship between an overactive entero-insular axis and the hyperinsulinemia found in these subjects.

CT Check Tags: Comparative Study; Female; Human; Male; Support, Non-U.S. Gov't



Adult  
**Blood Glucose: AN, analysis**  
 Body Weight  
**\*Gastric Inhibitory Polypeptide: AD, administration & dosage**  
**Gastric Inhibitory Polypeptide: BL, blood**  
**\*Gastrointestinal Hormones: AD, administration & dosage**  
**Glucose: AD, administration & dosage**  
**Infusions, Parenteral**  
**\*Insulin: BL, blood**  
 Insulin: SE, secretion  
 Middle Age  
**\*Obesity: BL, blood**  
 Secretory Rate: DE, drug effects  
 RN 11061-68-0 (Insulin); 50-99-7 (Glucose); 59392-49-3  
 (Gastric Inhibitory Polypeptide)  
 CN 0 (Blood Glucose); 0 (Gastrointestinal Hormones)

L102 ANSWER 5 OF 6 MEDLINE  
 AN 83288121 MEDLINE  
 DN 83288121  
 TI Preservation of incretin activity after removal of **gastric inhibitory polypeptide (GIP)** from rat gut extracts by immunoadsorption.  
 AU Ebert R; Unger H; Creutzfeldt W  
 SO DIABETOLOGIA, (1983 Jun) 24 (6) 449-54.  
 Journal code: E93. ISSN: 0012-186X.  
 CY GERMANY: Germany, Federal Republic of  
 DT Journal; Article; (JOURNAL ARTICLE)  
 LA English  
 FS Priority Journals  
 EM 198312  
 AB The action of watery rat gut extracts on **glucose**-induced insulin release in anaesthetized rats was examined before and after removal of **GIP** by immunoadsorption. Infusions of **GIP**-containing rat gut extracts nearly doubled the insulin release induced by intravenous **glucose** (1 g X kg<sup>-1</sup> X h<sup>-1</sup>). Peak insulin secretion was 98 +/- 11 mU/l (mean +/- SEM) after intravenous **glucose** and increased to 178 +/- 16 mU/l following infusion of **glucose** plus gut extract (p less than 0.005). After injection of **GIP** antiserum in sufficient amounts to neutralize the **GIP** activity in the gut extract preparation, the additional insulin release due to the gut extract was reduced by only 30%. After complete removal of **GIP** from gut extracts by immuno-absorption, more than 50% of the incretin effect remained. These data suggest that the insulinotropic activity of rat gut extracts can only be partially related to **GIP**. The existence of additional insulinotropic gut factors which may also be released following oral **glucose** is postulated.  
 CT Check Tags: Animal; Male; Support, Non-U.S. Gov't  
 Antibodies: AD, administration & dosage  
**\*Gastric Inhibitory Polypeptide: AD, administration & dosage**  
**Gastric Inhibitory Polypeptide: IM, immunology**  
**\*Gastrointestinal Hormones: AD, administration & dosage**  
**Glucose: AD, administration & dosage**  
**Glucose: ME, metabolism**  
 Immunosorbent Techniques  
**Infusions, Parenteral**  
**\*Insulin: SE, secretion**  
**\*Intestines: ME, metabolism**  
**\*Peptide Fragments: ME, metabolism**  
 Rats  
 Rats, Inbred Strains  
 Time Factors  
**\*Tissue Extracts: AD, administration & dosage**  
 Tissue Extracts: AN, analysis  
 RN 11061-68-0 (Insulin); 119637-73-9 (glucagon-like peptide I (7-36)amide); 50-99-7 (Glucose); 59392-49-3 (Gastric

**Inhibitory Polypeptide)**

CN 0 (Antibodies); 0 (Gastrointestinal Hormones); 0 (Peptide Fragments); 0 (Peptides); 0 (Tissue Extracts)

L102 ANSWER 6 OF 6 MEDLINE

AN 77259542 MEDLINE

DN 77259542

TI Augmented **gastric inhibitory polypeptide** response to intraduodenal **glucose** by exogenous gastrin and cholecystokinin.

AU Sirinek K R; Cataland S; O'Dorisio T M; Mazzaferri E L; Crockett S E; Pace W G

SO SURGERY, (1977 Oct) 82 (4) 438-42.  
Journal code: VC3. ISSN: 0039-6060.

CY United States

DT Journal; Article; (JOURNAL ARTICLE)

LA English

FS Abridged Index Medicus Journals; Priority Journals

EM 197712

CT Check Tags: Animal

\*Cholecystokinin: PD, pharmacology

Dogs

Duodenum

Fasting

\***Gastric Inhibitory Polypeptide: ME, metabolism**

\*Gastrins: PD, pharmacology

\*Gastrointestinal Hormones: ME, metabolism

**Glucagon: PD, pharmacology**

\***Glucose: AD, administration & dosage**

**Glucose: DU, diagnostic use**

**Glucose: PD, pharmacology**

**Infusions, Parenteral**

Pentagastrin: PD, pharmacology

Secretin: PD, pharmacology

Sodium Chloride: PD, pharmacology

Stimulation, Chemical

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=> d his l103-

(FILE 'MEDLINE' ENTERED AT 14:01:50 ON 10 APR 2000)

FILE 'WPIDS' ENTERED AT 14:02:26 ON 10 APR 2000

L103           E NAUCK M/AU  
               5 S E3,E4  
               E WAGNER F/AU  
 L104       139 S E3,E4  
 L105       144 S L103,L104  
               E GLUCOSE/DCN  
               E E3+ALL/DCN  
 L106       7698 S E2 OR 0038/DRN  
               E GLUCOSE/DCN  
               E E8+ALL/DCN  
 L107       18 S E2  
               E GLUCOSE/DCN  
               E E9+ALL/DCN  
 L108       30290 SEA "L814"/M0,M1,M2,M3,M4,M5,M6  
 L109       45926 S L106-L108 OR GLUCOSE  
 L110       97 S L109 AND (GLUCAGON? OR GLUCACON?)  
 L111       32 S L109 AND (GLP OR GIP)  
 L112       11 S L109 AND GASTRI? () INHIBIT? () (PEPTIDE OR POLYPEPTIDE OR PO  
 L113       104 S L110-L112  
 L114       27 S L109 AND A61K038-26/IC,ICM,ICS,ICA,ICI  
 L115       110 S L113,L114  
 L116       7 S L109 AND L105  
 L117       1 S L116 AND PARENTER?  
 L118       15 S L110-L115 AND ?PARENTERAL?  
 L119       1 S L118 AND L105  
 L120       2 S D03-H01T?/MC AND L110-L115  
 L121       2 SEA (L110 OR L111 OR L112 OR L113 OR L114 OR L115) AND  
               R023/M0,M1,M2,M3,M4,M5,M6  
 L122       5 S L110-L115 AND A61K009-08/IC,ICM,ICS,ICA,ICI  
 L123       19 S L118-L122  
 L124       13 SEA M782/M0,M1,M2,M3,M4,M5,M6 AND L123  
 L125       6 S L123 NOT L124  
 L126       5 S L124 AND (NUTRITION OR TREAT?)/TI  
 L127       2 S L126 NOT (TRANSDERMAL OR SHOCK OR AMYLIN)/TI

FILE 'WPIDS' ENTERED AT 14:18:37 ON 10 APR 2000

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L127 ANSWER 1 OF 2 WPIDS COPYRIGHT 2000 DERWENT INFORMATION LTD  
 AN 1997-146440 [14] WPIDS  
 DNC C1997-046880  
 TI Compsns. for **parenteral nutrition** - contg.  
       **glucagon-like peptide 1 and/or gastric**  
       **inhibitory peptide.**  
 DC B04 D13  
 IN **NAUCK, M; NAUCK, M A; WAGNER, F W**  
 PA (BION-N) BIONEBRASKA INC; (NAUC-I) NAUCK M A; (NAUK-I) NAUCK M A; (NAUC-I)  
       NAUCK M  
 CYC 73  
 PI DE 19530865 A1 19970227 (199714)\* 3p A23L001-29  
       WO 9707814 A1 19970306 (199716) EN 20p A61K038-26 <--  
       RW: AT BE CH DE DK EA ES FI FR GB GR IE IT KE LS LU MC MW NL OA PT SD  
           SE SZ UG  
       W: AL AM AT AU AZ BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE HU  
           IL IS JP KE KG KP KR KZ LK LR LS LT LU LV MD MG MK MN MW MX NO NZ  
           PL PT RO RU SD SE SG SI SK TJ TM TR TT UA UG US UZ VN  
       AU 9669006 A 19970319 (199728) A61K038-26 <--  
       EP 851763 A1 19980708 (199831) EN A61K038-26 <--  
       R: AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE  
       CZ 9800508 A3 19990113 (199908) A61K038-26 <--  
       CN 1195992 A 19981014 (199909) A61K038-26 <--  
       JP 11514972 W 19991221 (200010) 22p A61K038-00  
 ADT DE 19530865 A1 DE 1995-19530865 19950822; WO 9707814 A1 WO 1996-US13615  
       19960822; AU 9669006 A AU 1996-69006 19960822; EP 851763 A1 EP 1996-929722

19960822, WO 1996-US13615 19960822; CZ 9800508 A3 WO 1996-US13615  
 19960822, CZ 1998-508 19960822; CN 1195992 A CN 1996-196938 19960822; JP  
 11514972 W WO 1996-US13615 19960822, JP 1997-510445 19960822  
 FDT AU 9669006 A Based on WO 9707814; EP 851763 A1 Based on WO 9707814; CZ  
 9800508 A3 Based on WO 9707814; JP 11514972 W Based on WO 9707814  
 PRAI DE 1995-19530865 19950822  
 IC ICM A23L001-29; A61K038-00; **A61K038-26**  
 ICS A23L001-305; **A61K009-08**; A61K009-22; A61K031-00;  
 A61K031-70; A61K038-22  
 AB DE 19530865 A UPAB: 19970407  
 Compsns. for **parenteral** nutrition contain **glucagon**  
 -like peptide 1 [7-36 amide] and/or **gastric inhibitory**  
**peptide**.  
 ADVANTAGE - High-calorie nutrition can be given with reduced risk of  
 hyperglycaemia and with reduced risk of hypoglycaemia compared with the  
 use of insulin.  
 Dwg.0/0  
 FS CPI  
 FA AB; DCN  
 MC CPI: B04-N02; B14-E11; **D03-H01T2**

L127 ANSWER 2 OF 2 WPIDS COPYRIGHT 2000 DERWENT INFORMATION LTD  
 AN 1996-010691 [01] WPIDS  
 DNC C1996-003346  
 TI **Treating** insulin-requiring diabetes with **glucagon**-like  
 peptide or derivs. - opt. together with insulin, provides improved  
 control of blood **glucose** levels.  
 DC B04  
 IN DUPRE, J  
 PA (AMYL-N) AMYLIN PHARM INC; (LONH-N) LONDON HEALTH ASSOC; (AMYL) AMYLIN  
 PHARM INC  
 CYC 65  
 PI WO 9531214 A1 19951123 (199601)\* EN 29p A61K038-26 <--  
 RW: AT BE CH DE DK ES FR GB GR IE IT KE LU MC MW NL OA PT SD SE SZ UG  
 W: AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE  
 KG KP KR KZ LK LR LT LU LV MD MG MN MW MX NO NZ PL PT RO RU SD SE  
 SG SI SK TJ TM TT UA UG US UZ VN  
 AU 9524044 A 19951205 (199620) A61K038-26 <--  
 EP 762890 A1 19970319 (199716) EN A61K038-26 <--  
 R: AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE  
 JP 10500114 W 19980106 (199811) 28p A61K038-26 <--  
 AU 711611 B 19991014 (200001) A61K038-26 <--  
 ADT WO 9531214 A1 WO 1995-CA287 19950512; AU 9524044 A AU 1995-24044 19950512;  
 EP 762890 A1 EP 1995-917874 19950512, WO 1995-CA287 19950512; JP 10500114  
 W JP 1995-529262 19950512, WO 1995-CA287 19950512; AU 711611 B AU  
 1995-24044 19950512  
 FDT AU 9524044 A Based on WO 9531214; EP 762890 A1 Based on WO 9531214; JP  
 10500114 W Based on WO 9531214; AU 711611 B Previous Publ. AU 9524044,  
 Based on WO 9531214  
 PRAI GB 1994-9496 19940512  
 REP 2.Jnl.Ref; WO 9111457; WO 9325579  
 IC ICM **A61K038-26**  
 ICS A61K038-28  
 ICI **A61K038-26**, A61K038:  
 AB WO 9531214 A UPAB: 19971021  
 Insulin-requiring diabetes is treated by admin of (a) insulin and (b)  
**glucagon**-like peptide 1 (7-37) (IIa), **glucagon**-like  
 peptide 1 (7-36) amide (IIb), or an analogue or fragment of (IIa) or  
 (IIb). Also new is the treatment of type I diabetes with these peptides  
 alone without using insulin.  
 USE - The method is used in human medicine for the treatment of types  
 I or II diabetes. The use of (IIa)/(IIb) alone may be suitable for  
 treating some cases of type I, partic. in remission phase subjects. The  
 peptides may be given orally, nasally or **parenterally**.  
 ADVANTAGE - The use of (IIa)/(IIb), opt. in (synergistic) combination  
 with oral hypoglycaemics, is already known for treatment of non-insulin

dependent diabetes. It is now found, that these peptides improve control of glycaemia in patients requiring insulin. When administered before a meal, they delay the increase in blood **glucose** levels by inhibiting emptying of the stomach (insulin secretion is not affected) and thus, should be effective even in patients with no residual insulin-secreting capacity. The use of the peptides may make it possible to reduce the overall insulin dose.

Dwg.1/6

FS CPI  
FA AB; GI  
MC CPI: B04-J03A; B04-N04; B14-S04

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FILE LAST UPDATED: 9 Apr 2000 (20000409/ED)

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L1 3 S 58367-01-4 OR 921-60-8 OR 50-99-7  
L2 1 S 59392-49-3  
L3 1 S 89750-14-1

FILE 'HCAPLUS' ENTERED AT 14:31:44 ON 10 APR 2000  
L4 106038 S L1  
L5 1427 S L2 OR L3  
L6 250112 S L4 OR GLUCOSE  
L7 20351 S L5 OR GLUCAGON? OR GLUCACON? OR GIP OR GLP OR GASTRIC INHIBIT  
L8 8020 S L6 AND L7  
L9 86 S L8 AND ?PARENTERAL?  
L10 81 S L2 (L) THU/RL OR L3 (L) THU/RL  
L11 45 S L10 AND L8  
L12 6789 S L8 AND PY<=1995  
L13 42 S L8 AND PRY<=1995  
L14 40 S L8 AND PRY.B<=1995  
L15 50 S L8 AND AY<=1995  
L16 45 S L8 AND AY.B<=1995

L17 6798 S L12-L16  
 L18 4 S L17 AND L10  
 L19 75 S L17 AND L9  
 L20 1 S L19 AND L18  
 L21 1 S 63/SC,SX AND L17 AND L9  
 L22 5 S 1/SC,SX AND L17 AND L9  
 L23 1 S 17/SC,SX AND L17 AND L9  
 L24 50 S 18/SC,SX AND L17 AND L9  
 L25 31 S NUTRI?/CW AND L17 AND L9  
 L26 7 S L20-L23  
 L27 52 S L24-L26 NOT (NAUCK M? OR WAGNER F?)/AU  
 L28 9 S COMPOSITION AND L27  
 L29 2053 S L1 (L) THU/RL OR L1 (L) FFD/RL  
 L30 81 S L2 (L) FFD/RL OR L3 (L) FFD/RL OR L2 (L) THU/RL OR L3 (L) THU  
 L31 2 S L29 AND L30  
 L32 0 S L27 AND L29  
 L33 0 S L27 AND L30  
 L34 1 S L31 NOT NAUCK ?/AU

FILE 'HCAPLUS' ENTERED AT 14:42:10 ON 10 APR 2000

=> d all

L34 ANSWER 1 OF 1 HCAPLUS COPYRIGHT 2000 ACS  
 AN 1999:626062 HCAPLUS  
 DN 131:262604  
 TI Pharmaceutical compositions for prolonged peptide release and preparation method  
 IN Pellet, Marc; Bismuth, Frederic  
 PA Societe de Conseils de Recherches et d'Applications Scientifiques (S.C.R.A.S, Fr.  
 SO PCT Int. Appl., 23 pp.  
 CODEN: PIXXD2  
 DT Patent  
 LA French  
 IC ICM A61K038-09  
 ICS A61K038-31; A61K009-14; A61K047-26  
 CC 63-6 (Pharmaceuticals)  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9948517	A1	19990930	WO 1999-FR667	19990322
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	FR 2776520	A1	19991001	FR 1998-3667	19980325
	AU 9929384	A1	19991018	AU 1999-29384	19990322
PRAI	FR 1998-3667		19980325		
	WO 1999-FR667		19990322		
AB	Novel solid or semi-solid pharmaceutical compns. comprising a sol. peptide salt capable of jellifying, having a high sp. surface area is disclosed. Said compns. can also comprise an excipient and/or water. Once injected to a patient, the compns. jellify and release the peptide salt for a long time interval not less than 15 days. Lanreotide acetate (I) with sp. surface of 0.61 m2/g was dissolved in water at 30 g/L. The soln. was then lyophilized to obtain I with sp. surface of 5.41 m2/g. A homogeneous soln. of 3 g I in 6.927 mL water was prepd. for direct injection to a patient.				
ST	prolonged release pharmaceutical injection peptide; lanreotide prolonged				

release pharmaceutical injection

IT Drug delivery systems  
(injections, sustained release; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Solvents  
(org.; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Surfactants  
(pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Blood-coagulation factors  
Bone morphogenetic proteins  
Carbohydrates, biological studies  
Enkephalins  
Interleukin 2  
Interleukins  
Peptides, biological studies  
Platelet-derived growth factors  
Polysaccharides, biological studies  
Tumor necrosis factors  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Alcohols, biological studies  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(polyhydric; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Thymus hormones  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(thymostimulin; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Interferons  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Integrins  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.alpha.IIb.beta.3; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Interferons  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.beta.; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT Interferons  
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(.gamma.; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT 116243-73-3, Endothelin  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(antagonists; pharmaceutical compns. for prolonged peptide release and prepn. method)

IT 50-56-6, Oxytocin, biological studies 50-70-4, Sorbitol, biological studies 50-99-7, Glucose, biological studies 58-82-2, Bradykinin 63-42-3, Lactose 69-65-8, Mannitol 1066-17-7, Colistin 1393-25-5, Secretin 1404-26-8, Polymyxin B 1405-87-4, Bacitracin 1405-97-6, Gramicidin 1407-47-2, Angiotensin 9001-01-8, Kallikrein 9002-60-2, Acth, biological studies 9002-61-3, Human chorionic gonadotropin 9002-62-4, Prolactin, biological studies 9002-64-6, Parathyroid hormone 9002-67-9, Luteinizing hormone 9002-68-0, Follicle-stimulating hormone 9002-71-5, Thyroid stimulating hormone 9002-72-6, Growth hormone 9002-76-0, Gastrin 9002-79-3, Melanocyte stimulating hormone 9007-12-9, Calcitonin 9007-92-5, Glucagon, biological studies 9011-97-6, Cholecystokinin 9015-68-3, Asparaginase 9034-39-3, Somatoliberin 9034-40-6, Lh rh 9035-54-5 9039-53-6, Urokinase 9061-61-4, Nerve growth factor 9063-57-4, Tuftsin 9066-59-5, Lysozyme hydrochloride 11000-17-2, Vasopressin 11096-26-7,

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Erythropoietin 17650-98-5, Caerulein 24305-27-9, Thyrotropin releasing hormone 31362-50-2, Bombesin 33507-63-0, Substance P 37221-79-7, Vasoactive Intestinal peptide 39379-15-2, Neurotensin 51110-01-1, Somatostatin 51110-01-1D, Somatostatin, analogs and derivs. 52906-92-0, Motilin 53714-56-0, Leuprorelin 57773-63-4, Triptoreline 57982-77-1, Buserelin 59392-49-3, Gastric inhibitory polypeptide 60118-07-2, Endorphin 60529-76-2, Thymopoietin 61512-21-8, Thymosin 62229-50-9, Epidermal growth factor 62683-29-8, Colony stimulating factor 63340-72-7, Thymus humoral factor 65807-02-5, Goserelin 70904-56-2, Kyotorphin 74913-18-1, Dynorphin 78922-62-0, Serum thymic factor 79517-01-4, Octreotide acetate 80043-53-4, Gastrin releasing peptide 82785-45-3, Neuropeptide y 83150-76-9, Octreotide 83652-28-2, Calcitonin gene related peptide 103370-86-1, Parathyroid hormone related peptide 106388-42-5, Peptide YY 108736-35-2, Lanreotide 127984-74-1, Lanreotide acetate 137061-48-4, Pacap 160296-12-8 164003-54-7, TFX-Thymomodulin

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(pharmaceutical compns. for prolonged peptide release and prepn. method)